BOSTON UNIVERSITY

GRADUATE SCHOOL

Dissertation

A HISTORY OF SECONDARY SCHOOL ARCHITECTURE IN MASSACHUSETTS

BY

Frank Martin Gracey

(M. A., Yale University, 1924)

submitted in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

1937

CONTENTS

C O N T E N T S

I L L U S T R A T I O N S

PLATE	XVI	1913 - High School of Commerce in Worcester. Building Two.
		1914 - High School of Commerce in Boston
		1915 - Wilmington High School
		1915 - Drury High School in North Adams
		1915 - Dedham High School
PLATE	XVII	1916 - Milton High School
		1916 - Brockton High School for Girls
		1916 - Winthrop Junior High School in Brockton
		1916 - High School of Commerce in Springfield
PLATE	XVIII	1892 - Plymouth High School
		1917 - Lynn Classical High School
		1917 - Chicopee High School
		1917 - Belmont High School
		1917 - Taunton High School
		1918 - Punchard High School in Andover. Third Building.
PLATE	XIX	1917 - Amesbury High School
		1919 - Bridgewater Junior High School
PLATE	XX	1917 - Plymouth Junior High School
		1921 - Longmeadow Junior High School
		1922 - Newton Junior High School
		1923 - South Junior High School in Waltham
		Frank Irving Cooper, Dean of School House Architects.
PLATE	XXI	1922 - Public Latin School in Boston
		1923 - Wakefield High School
		1924 - Quincy High School
		1925 - Dorchester High School for Boys
		1925 - Rockport High School
PLATE	XXII	1922 - Peabody High School
		1923 - Templeton High School
		1924 - Adams Junior High School
PLATE	XXIII	1882 - Hudson High School
		1891 - Cohasset High School
		1914 - Attleboro High School
		1923 - Palmer High School
		1926 - Foxboro High School
		1931 - Provincetown High School
		1936 - Newburyport High School
PLATE	XXIV	1920 - Framingham Junior High School
		1923 - Stoneham High School
		1926 - East Boston High School
		1926 - Chatham High School
		1927 - Duxbury High School
		1927 - Braintree High School

PLATE XXV	1923 -	Grafton Street Junior High School in Worcester
		Auditorium
		Gymnasium
		Print Shop
PLATE XXVI	1923 -	Theodore Roosevelt Intermediate School in Boston
	1925 -	Grover Cleveland Intermediate School in Boston
	1926 -	Donald McKay Intermediate School in Boston
PLATE XXVII	1923 -	Marshfield High School
	1923 -	Southbridge High School
	1927 -	Whitman High School
	1927 -	Swansea High School
	1931 -	Billerica High School
PLATE XXVIII	1926 -	Boston Mechanics Arts High School
	1928 -	Weymouth Civic Center with High School
	1929 -	Worcester High School of Commerce. Building Three.
PLATE XXIX	1926 -	Boston Memorial High School for Boys
	1926 -	Boston Memorial High School for Girls
	1926 -	Chelsea High School
	1926 -	Newton High School
PLATE XXX	1926 -	Hobbs Junior High School in Medford
	1927 -	North Junior High School in New Bedford
	1927 -	Warren Junior High School in Newton
PLATE XXXI	1927 -	Pembroke High School
	1929 -	Agawam Junior-Senior High School
	1929 -	Somerville High School
	1929 -	Hyde Park High School
	1930 -	Westfield High School
PLATE XXXII	1927 -	Hopedale High School
	1927 -	Medfield High School
	1929 -	Tisbury High School
	1936 -	Worcester North High School
PLATE XXXIII	1928 -	Roberts Junior High School in Medford
	1928 -	Leominster Junior High School
	1929 -	Webster Junior-Senior High School
PLATE XXXIV	1930 -	Scituate High School
	1930 -	Brighton High School
	1931 -	Yarmouth High School
	1931 -	Pittsfield High School
	1936 -	Plymouth High School
PLATE XXXV	1930 -	Solomon Lewenberg Intermediate School in Boston
	1931 -	Mary E. Curley Intermediate School in Boston
	1932 -	Woodrow Wilson Intermediate School in Boston

PLATE	XXXVI	1930 - Needham High School
		1932 - Brookline High School
		View in Quadrangle
		First Floor Plan
		1932 - Arlington High School
PLATE	XXXVII	1931 - Ayer Junior-Senior High School
		1932 - Winchester Junior High School
		1932 - Lynn English High School
		1933 - Topsfield High School
		1933 - Boston Latin School Addition
PLATE	XXXVIII	1932 - Thomas A. Edison Intermediate School in Boston
		1935 - Patrick F. Gavin Intermediate School in Boston
		1935 - Robert Gould Shaw Intermediate School in Boston
PLATE	XXXIX	1932 - Clarence R. Edwards Intermediate School in Boston
		1936 - Warren Junior High School in Wellesley
PLATE	XL	1933 - Melrose High School
		Auditorium
		Gymnasium
		Typical Class Room
		Cafeteria
		Science Department
		Girls Shower
PLATE	XLI	1934 - Bourne High School
		1935 - Abington High School
		1936 - Uxbridge High School
PLATE	XLII	1935 - Tewksbury High School
		1935 - New Bedford High School
		1936 - Marblehead High School
		1936 - West Springfield High School
		1936 - Roslindale High School
PLATE	XLIII	1936 - Fitchburg High School
		1936 - Milford High School
		1936 - Auburn High School
PLATE	XLIV	1936 - Boston. Intermediate School, Phillips Brooks District
		1936 - Boston. Intermediate School, Dudley District
		1936 - Boston. Intermediate School, Washington Irving Dist.
PLATE	XLV	1900 - Canton High School
		1920 - Bird Junior High School in Walpole
		1920 - North Junior High School in Waltham
		1923 - Northborough High School
		1923 - Everett High School
		1924 - Falmouth Junior High School

PLATE XLVI	1928 - Groton High School
	1923 - Northeastern Junior High School in Somerville
	1923 - Lyman High School in Ashby
	1926 - Westborough High School
	1928 - Rockland High School
	1930 - Danvers High School
PLATE XLVII	1921 - Chestnut Street Junior High School in Springfield
	1925 - Beverly High School
	1925 - Lexington High School
	1932 - Hamilton High School
PLATE XLVIII	1924 - Brown Junior High School in Fitchburg
	1925 - Franklin High School
	1925 - Eastern Junior High School in Lynn
	1925 - Winthrop Junior High School
PLATE XLIX	1923 - Waltham Junior High School, South
	1923 - Stoughton High School
	1923 - Shrewsbury High School
	1924 - Norwood High School
	1925 - Lincoln Junior High School in Malden
	1925 - Junior High School in West Springfield

I. THE PROBLEM

Since the close of the World War there has been a marked increase in the erection of new buildings for school purposes. Since, in this country, committed to the policy of providing education for all the children of all the people at public expense, the control of and provision for such education is a matter of local, rather than of state or national concern, and hence is nearer to the interest of the people, the reasons for this increase in school building is a worthy subject for investigation.

In the smaller American communities, the expenditures for educational purposes constitute by far the major portion of the budget, and the capital expense for the erection of a new high school building, entailing perhaps a heavy bond issue and an increase in the tax rate of the town, is a matter of serious concern to all the citizens.

Why such a building is needed, what the benefits will be of its addition to the community, why the older condition of things has become inadequate, what features the new building should possess to make it serve the interests of the children more effectively, what type of buildings other communities have provided, how it can be financed, how long it will last before it in turn is out of date, are just a few of the many questions which arise in the mind of all the thinking citizens of any town contemplating the erection of such a building.

This growing interest in school building on the part of such a large number of people makes it timely and appropriate that a research should be made into the history of school building in some typical American state, showing the developement of interest in provision for such buildings, and particularly what type of structures have recently been added.

Since the Constitution of the United States makes no provision for federal control of education such as we find in some other nations, and since the practices in the several states differ so widely when we consider the vast size of this country, an investigation of the history of school building in the nation as a whole would offer so many difficulties as to render it of less value than a study of one typical state.

Which state, therefore, should be chosen for this purpose?

William T. Harris, formerly United States Commissioner of Education, and Editor of the International Education Series for D. Appleton and Company, says

> " By common censent, the teachers of the United States would choose Massachusetts as the state possessing the most interesting educational history. It offers the completest exhibition of the Puritan ideal of education that is to be found. Its experience served for all the other New England states and for the communities in the West settled in large part by emigrants from New England.
>
> There is scarcely a feature of school instruction or school discipline and management that has not been differentiated in Massachusetts at some epock within the three hundred years of its history. The adoption of a course of study anf the fixing of the amount of instruction to be given in each branch and the time when it is best to begin it; the relative position of the disciplinary and the information subjects; the use and disuse of corporal punishment; the education of girls; written examinations; the grading of schools; the relation of principal and assistant teachers; professional instruction in normal schools; religious instruction, unsectarian moral instruction and secular instruction; theocratic or ecclesiastical government and purely secular control; or the union and separation of church and state; government by centralized power and then by distribution of power to districts, realizing the extremes of local self-government, and then the recovery of central authority; public high schools and private academies; co-education and separate education of the sexes; educational support by tuition fees, rate bills, general taxation and local taxation; general and local supervision by committees and by experts; educational associations and teachers' institutes; large and small school buildings and their division into rooms, their heating, ventilation and lighting; evening schools, kindergartens, industrial art instruction, free text books - in fact almost all educational problems have been agitated at one time or another in Massachusetts.
>
> It has often happened that some one feature or another has been taken up by a nearby state and more perfectly developed than in Massachusetts; or in the inception of some important movement other states have anticipated Massachusetts. But no other state has, on the whole, so rich and profitable an experience."
>
> (In introduction to Martin's EVOLUTION OF MASSACHUSETTS PUBLIC SCHOOLS) 13

In selecting a state for this study, it is neccessary that it should be a state with a long enough history of public education to include most of the experiences common to the movement for public education in the country as a whole; it should be a state small and compact enough to afford results which can reasonably be assumed to be typical of the state as a whole, and yet one in which practices are sufficiently varied as a result of local control so that most of the common types of school buildings are likely to be found; and it should be a state which contains a large number of cities in a comparatively small area so that provision for the mass education of children should be more common than of the education of children in small groups in scattered communities. Consideration of all these factors and of others favorable to the study, point almost inevitably to the selection of Massachusetts.

Since in earlier years, and even at the present time, the majority of school buildings in the state were and are of the rural elementary type, which until comparatively recent years boasted few features which could truthfully be considered under the term "architecture", and since even today the best examples of schoolhouse architecture are to be found in the secondary school buildings in the larger communities, it seemed best further to limit the investigation to a history of secondary school architecture in Massachusetts, with only such references to buildings for elementary purposes as will help to an understanding of the more limited problem.

Students of American educational history are acquainted with the fact that the type of education developed in Massachusetts was pre-eminently public education. In the southern states it was private education, and in the middle states it was a combination of the two. To be sure, Massachusetts has

had and still does have a number of very excellent schools under private auspices, and possibly a larger number of parochial schools than most other states of the same size, yet it is public schools that predominate, and the architecture of other school buildings has, with few modifications, followed that of the public schools. Hence, while not neglecting other schools, this report will deal mostly with public secondary school buildings.

The purpose of this research is four-fold:

FIRST: To trace the development of schoolhouse architecture in Massachusetts, particularly as it applies to public secondary schools,

SECOND: To determine the causes of changing conceptions of what is needed in a proper and suitable secondary school building,

THIRD: To evaluate some more or less typical buildings now in use in the light of certain standards which have come to be adopted, and

FOURTH: To examine the types of buildings which have been erected in the Commonwealth of Massachusetts since the World War.

Such a study, so far as can be discovered, has never yet been made. That there has been a development, and that in the main it has been in the direction of improvement, is evident. But until the steps in this development are known and set down, and until the causes are determined, the significance of what has been accomplished will not be made apparent, nor the lessons of the past aid us in directing our future course.

This study should throw some light upon the conditions of school administration and of social attitudes which are most conducive to the proper provision of suitable and efficient physical plants for secondary education. It may point out some mistakes which have been made in the past and which can be avoided in the future, or it may show some trends which were valuable in the past which, if developed further in the future, may result in greater

attainment.

Since the study is confined to Massachusetts, it only incidentally takes into consideration that much may be learned from experiments in other states and in other lands, but in the earlier years of its history at least, the people of Massachusetts found the principal and most valuable source of their learning in this problem to come from their own experiment.

Since the development of schoolhouse architecture has, until very recent years, rested solely with the separate communities and local school authorities, the source of much of our historical data must come from the records of local towns and the historians of individual schools. Where marked improvement in school architecture has come about through the efforts of certain leaders, it is necessary to study the work of these leaders and discover how they obtained the results that they did. Where certain buildings are found to mark important points in the progress of secondary school architecture, these buildings must be examined and compared or contrasted with earlier and later successes. Where there seems a tendency toward the establishment of certain norms or standards, the cause of their adoption must be determined.

The history of public secondary school architecture in Massachusetts extends of a period of slightly more than three hundred years. In Europe, public buildings which have been used for three hundred years and are still in use, are not at all uncommon. But in Europe most such buildings are of much more permanent material, stone and brick, than was common in the earlier history of New England, where wood was plentiful and the easiest to use. And wood is not only subject to decay but is very inflammable. Hence the search for data concerning the earlier secondary school buildings of the State is hampered by frequently finding that the building perished before any picture

was or could be made of it. Our knowledge of these earlier buildings is there-fore mainly confined to occasional descriptions. Still, some very old buildings are still standing in Massachusetts, and although most have undergone much remodeling, an imagination guided by familiarity with historical description, can reconstruct much of their story as one visits them.

Personal visits have therefore been made to a very large number of the public secondary school buildings in the state, representing almost every type of building now in use and every epoch in the history of such buildings still represented by extant examples. Architect's plans of many other buildings have been examined in detail. Town and state records have been consulted. Every school superintendent, senior or junior high school principal, historical society, chamber of commerce, local newspaper, and schoolhouse architect in the State has been contacted. The authorities of private and parochial schools have been solicited for data. And of course, every available book pertinent to the subject, so far as they could be discovered in the state library, the Boston Public Library, the library of Boston University and Harvard, and many other libraries, public and private, have been consulted.

The questionnaire method has been used, with a follow-up of personal letter and interview wherever possible. The State Commissioner of Education, Mr. Payson Smith, has been very helpful, as have other members of the State Department of Education, notably Mr. Burr F. Jones. The United States Office of Education, of the Public Works Administration, and of the Works Progress Administration both in Washington and in Boston have been visited and have co-operated. Architects have furnished valuable material and information, especially Mr. John Ritchie of the Frank Irving Cooper Corporation and Mr. Kilham of Kilham, Hopkins and Greeley. Mr. William W. Drummey, Superintendent of Schoolhouse Construction in Boston has been most helpful.

II. WHAT HAS PREVIOUSLY BEEN DONE IN THIS FIELD.

So far as can be discovered, nothing has ever been published dealing specifically with the history of secondary school architecture in Massachusetts. Nor has there come to light any thesis written on this subject.

A very helpful article on School Architecture appears in the latest edition of the Encyclopedia Brittanica, signed by Frank Irving Cooper. As Mr. Cooper is one of the few acknowledged authorities on the subject, a full quotation from his article may serve as a proper introduction to this report.

" Originally the school building consisted of a single room or hall. As the schools developed there came into use that treatment of this building having a room in each of the four corners with a hallway through the center; then came the two story plan, duplicating the first story, fol -lowed by the three story building with the third story containing the assembly hall. These buildings were usually surmounted by a cupola contain -ing the school bell. As the number of pupils increased the need for more space resulted in the addition of more rooms and there followed diversity of arrangement in the general type of plan.

These may be classified as the closed and open types; the closed type being the solid rectangle, the hollow rectangle, and the rectangle with interior auditorium and courts, the open type being in the form of one of the following letters; I, T, U, E, or H. In determining the type of plan, consideration should be given to the following factors, in the order named: (1) orientation, (2) matural light and natural ventilation of the class rooms, (3) expansiveness, (4) flexibility, (5) light corridors, (6) effec- tive supervision, (7) reduction of vertical travel.

The World's Fair held in Chicago in 1893, and in Paris in 1900, brought together a brilliant exhibition of school plans which brought immediate results in the planning and designing of school buildings. At the same time the public began to show more liberality in their appropriations, and to expect of the architect a high grade of design and construction. The National Education Association in the United States appointed a commit -tee of its foremost educators and architects to study the planning of school buildings. this committee's report, 'School House Planning' 1925, provided for a set of standards by which a schoolhouse plan might be measured for right use of floor space, and contained chapters on the process of planning a school building, choice of plan, determination of the schedule of rooms, illumination, etc. The National Fire Protective Association, acting with the American Engineering Standards Committee, published a report, 'Safety to Life in Schools' 1927, giving rules for planning corridors, stairways, exits, and general construction. Previous to 1900 the usual secondary school was easily housed in the old form of school building. There was comparatively little architectural development except in ornamentation. Within the first quarter of the 20th century, however, there developed a movement in school administration, brought

about by the rising costs of school housing that made a marked impression on the schoolhouse plan.

The idea that each pupil should have one central desk and additional stations elsewhere has been shown to be based on a false conception of school needs. The superintendent of schools in Gary, Indiana, adopted an educational idea that had been used in Europe, and evolved a program of studies and time periods that made it financially possible for all school committees to give their pupils the benefits of a more enriched program than was possible under the old plan of administration. The program plans that every room, hall, shop, gymnasium, and recreational center shall be occupied and in use every school period.

The modern schoolhouse has unilateral lighting with a glass surface equal to twenty percent of the floor space, and is artificial lighting is laid out in accord with the code of the Illuminating Engineer's Association. Better construction means greater resistance to fire, and few schools are now built without fire resisting corridors and stair wells. There are fire alarms and means for extinquishing fires. The building also is divided into sections by means of fire doors that automatically close when the electric latch holding them open is released by the current sounding the fire alarm. School toilet rooms are located on the various floors instead of being concentrated in the basement, and they have the same type of fixtures as are found in the home. The heating and ventilating plant of educational buildings has been developed, and while there are differences of opinion as to the best type of ventilation, it is agreed that ventilation is necessary and the amount of fresh air to be supplied is prescribed by law in nearly all the states.

Physical training is now often required, and this has lead to some buildings being provided with gymnasiums, showers, and swimming pools. There is a growing tendency to plan a building so that it may be altered to meet the demands of a changing school program without undue cost. In general this means providing rooms that may be enlarged or reduced in size without destroying vital parts of the school house structure. There is a small but insistent demand for rooms equipped so that the laboratory method of teaching may be employed. By this method the pupil may receive instruction based on his own free examination, inquiry and experiment. The modern school building in many communities is equipped for radio reception and also for the talking moving picture. The principal's office may have a microphone transmitter connected to loud speaking telephones in each class room; thus the principal is able to address the entire school from his desk. In the auditorium the works of the master musicians providing the world's best music may be heard by the pupils by means of auditorium reproducers, actuated by record disks, micophones and amplifiers. Three secondary school buildings near Boston were so equipped in 1927-8 - the first installation of this kind for school buildings in the world. There is also a tendency for auditoriums to be reduced in size and to plan two or more of different sizes in the same building. Rooms for the school nurse, physicians and dentists are often added in administrative suites to those of the Principal, his clerks and assistants.

(Frank Irving Cooper, Architect, Boston, 1929. In the XIVth edition of the Encyclopedia Brittanica, under SCHOOL ARCHITECTURE)

Aside from this excellent, but necessarily brief resume, there does not seem to be any available history of school buildings in this state. There are,

however, three rather significant books which report on or reflect the condition of school buildings in the time in which they were written. Since at least two of these were written before much attention had been given to school planning, they may be regarded as historical documents of some value.

The earliest of these is Alcott's famous essay on the Construction of Schoolhouses, which was published in 1831, and which included as a companion essay the suggestions of William Woodbridge for an ideal schoolhouse. (William A. Alcott, Essay on Construction of School-houses. Boston 1831)

Then in 1838 we have an epoch-making writing, the addenda to the first report of Horace Mann as Secretary of the newly created State Board of Education, in which he describes the deplorable condition of the schoolhouses of Massachusetts as he found them on assuming this office, and his recommendations for their improvement, in which he quotes Woodbridge and reproduces his model plan. (Horace Mann, First Report of Secretary of Board of Education 1838)

His second report, the following year, shows that the first report bore immediate fruit, but the Board of Education published the results of an investigation in 1873, which revealed the extent to which the towns of the state were by that time actually giving some attention to the planning of schoolhouses. (Mass. Bd.of Education. Report on CONDITION OF SCHOOLHOUSES 1873)

In more recent years there have frequently appeared books by architects and others, containing plans of secondary school buildings already erected, and there are now several magazines and annual publications which enable one to follow the improvements constantly being made in such buildings.

One of the earliest of these is by Rufus R. Wade, chief Inspector of Public Buildings for this state (Wade. Schoolhouses and Public Buildings 1893) which he prepared for the World's Columbian Exposition in 1893, on the safe construction, heating and ventilation of school buildings.

III. A BRIEF REVIEW OF THE HISTORY OF SECONDARY EDUCATION IN MASSACHUSETTS.

a. Period of the Latin Grammar School.

The first permanent English settlement in Massachusetts was at Plymouth. Ten years later the second group of Puritans arrived who founded the colony of Massachusetts Bay and the town of Boston. It was the Boston settlers who established the first public schools in the English settlements. The "Pilgrim Forefathers" provided education in a different way, in the home, as they had done during their sojourn in Holland.

But the Boston Puritans had come directly from old England where many of them had studied in the Latin grammar schools of the Mother Country and some were even products of English colleges. Therefore we read in the 1636 Records,

> " After God had carried us safe to New England, and we had builded our houses, provided necessaries for our livelihood, reared convenient places of worship, and settled the civil government, one of the next things we longed for and looked after was to advance learning and perpetuate it to posterity; dreading to leave an illiterate ministry to the churches when our present ministry shall lie in dust."(Collection of Mass. Hist. Society)

It was this dread which induced them on October 28th of that same year to give the sum of four hundred pounds to establish "a college...to be at Newtown" (Records of Mass. Vol.1, p.183). Two years later, the Rev. John Harvard died and left his library and half his property to this new college, which was hence called Harvard, and Newtown was re-named Cambridge in memory of the college in England which had been the alma mater of some of the colonists.

Since in England, the Latin grammar school was the accepted institution for college preparation, the Boston people had anticipated the opening of Harvard college by providing in 1635 for such a school in Boston, to be known as the Boston Latin School. It was and still is the oldest secondary school in America. Elementary education was at first provided in the home or by the minister of each town, and was all that most children received.

But in 1642, the General Court,

> "taking into consideration the great neglect of many parents and guardians in training up their children in learning and labor and other useful employments which may be profitable to the commonwealth..." (Records of Mass. vol.ii, p.8)

ordered the selectmen of each town to attend to this important matter. Hence several of the towns established schools. But to make sure that all towns should do this, the famous Law of 1647 was passed:

> " It being one chiefe project of y^{t} ould deluder, Sathan, to keepe men from the knowledge of ye Scriptures, as in form^{r} times by keeping y^{m} in an unknowne tongue, so in these latt^{r} times by perswading from ye use of tongues y^{t} so at least ye true sense and meaning of ye originalle might be clouded by false glosses of saint seeming deceivers, y^{t} learning may not be buried in ye grave of o^{r} fath^{rs} in ye church and commonwealth, the Lord assisting o^{r} endeav^{rs}.
>
> It is therefore ord^{r}ed, y^{t} ev^{r}y township in this jurisdiction, aft^{r} ye Lord hath increased y^{m} to ye number of fifty household^{r}s, shall then forewth appoint with^{h}in their towns to teach all such children as shall resort to him to write and reade, whose wages shall be paid eith^{r} by ye parents or mast^{rs} of such children, or by ye inhabitants in gen^{r}all, by way od supply, as ye maior p^{t} of those y^{t} ord^{r} ye prudentials of ye towne shall appoint; provided, those y^{t} send their children be not oppressed by paying much more y^{n} they can have y^{m} taught for in oth^{r} townes; and it is furth^{r} ordered, y^{t} where any towne shall increase to ye numb^{r} of one hundred families or household^{rs} they shall set up a gramer schoole, ye master thereof being able to instruct youth so farr as they may be fitted for ye university; provided, y^{t} if any towns neglect ye performance hereof above one yeare, y^{t} every such towne shall pay 5^{s} to ye next schoole till they shall performe this order." (Records of Mass. vol.ii, p.203)

Thus was begun the first complete system of publicly supported schools - elementary, secondary, and state college - maintained by the people and established by their own vote, in America. This being a law of Massachusetts Bay, did not effect the neighboring colony of The Plymouth Plantations. We find the following Latin grammar schools being established as a result:

In Massachusetts Bay		In Plymouth Plantations
Boston	1635	
Charlestown	1636	
Salem	1637	
Dorchester	1639	
Cambridge	1643	
Roxbury	1645	
Braintree	1646	
Watertown	1650	

In Massachusetts Bay		In Plymouth Plantations	
Ipswich	1651		
Newbury	1658		
Northampton	1667		
Hadley	1667	Plymouth county	1671
Hingham	1670	Duxbury	1677
Swansea	1673		
Concord	1690	Rehoboth	1678
Woburn	1685	Bristol	1682
Lynn	1687	Barnstable	1685
Springfield	1690	Taunton	1682

In the combined colony	
Plymouth town	1699
Taunton	1697
Marblehead	1698
Sandwich	1699
Lynn	1700

(W.H.Small. EARLY NEW ENGLAND SCHOOLS, p.30. Boston 1914)
The dates are somewhat uncertain, and some are merely dates of first mention.

Under the law of 1747 it was not required that formal schools should be established to prepare boys for Harvard, so long as some provision were made to this end. Hence on a majority of these towns the minister coached such boys as cared for such advanced education. Where schools were established the methods of financing them widely varied. In Cambridge it was mostly by tuition fees although there was a public grant for some Indian youths. (Paige. HISTORY of CAMBRIDGE, Boston 1877). In Boston the support was by subsriptions of wealthy citizens (Second Report of Boston Record Commissioners, p.160) or by income from the rent of islands. In Charlestown it was from the profits of fish weirs. (Frothingham. HISTORY OF CHARLESTOWN, pp 115-6 Boston, 1845). In Ipswich it was from many different sources.(Felt, HISTORY OF IPSWICH, p.83 Cambridge 1834). In most cases the income was supplemented by the laying of taxes. Hence, although the schools were public, they were not all free.

The Latin grammar schools were secondary schools of a highly selective character. The commonest form of elementary school was the dame-school. Some widow of the town who needed the money, taught the children from four years old from the ABC's through the New England Primer.

In the secondary school, the Psalter and the Bible were the only English texts. The boys were also taught a little ciphering. It is a "Latin grammer" school, so the boys began with Cheever's "Short Introduction to the Latin Tongue", proceeded through Lily's Grammar, to the Colloquies of Corderius, AEsop, Ovid, Virgil, Cicero, the Greek New Testament, and Homer. This curricu -lum, as in later days, was dictated by the college entrance requirements.

> " Whoever shall be able to read Tully or any other such classical author at sight, and correctly and without assistance to speak and write Latin both in prose and verse, and to inflect exactly the paradigms of Greek nouns and verbs, has a right to expect to be admitted into the college, and no one may claim admission without these qualifications."
> (Quincy. HISTORY OF HARVARD UNIVERSITY. vol.i, p.515) 24

The boys toiled seven or eight hours a day, learning by rote, encouraged by rod, sitting on hard benches without backs. The earlier teachers had received their education in England, but later those Harvard graduates who did not become ministers, and some who did, taught grammar schools. Both minister and teacher were town officers and answerable to the town meeting for the religious instruction of the town's children. The catechism, the Bible and the discourse of the previous Sunday were subjects of weekly examination in school. From the dame-school through the grammar school and through the college, the instruction was strictly religious education. The grammar school and the college were for the training of ministers and no other aim for secondary or higher education was considered.

By the beginning of the eighteenth century the enthusiasm for education seems to have waned, for the Acts and Resolves of the General Court for 1701 (i.p.470) complains that the law of 1647 was being "shamefully neglected" and increases the penalty. Many towns evaded the law and the penalty by appointing the minister to be the schoolmaster "if any lads should resort to him" (Acts and Resolves i.p.476) The expenses of King Philip's War had laid a heavy

burden upon the towns, and the same tendency to economy was manifest as in these later years of 1932-7. One of the methods of evasion used was the "moving grammar school", held for a short period in one part of town and then for another period in another part, often with no schoolhouse at all, the master holding forth in some farmhouse or vacant building. But soon it began to be made a condition of having the school held at any special cross-roads that the people living there should provide a school building. Thus, although the school was supported by the town, the building was supplied by the district, thus paving the way for the coming of the district school.

School teachers salaries were cut and other inducements substituted. The schoolmaster was exempted from taxes (1692), from military duty (1693), and then, since lowered salaries always result in inferior teachers, rules were made that they must be approved by the minister of the town and those of the two adjoining towns. (Acts and Resolves, i. p.470). As it became harder to find men who would teach for this small and uncertain pay, women teachers were often employed, and in many places the dame-school was merged with the grammar schools, and private schools brought under the selectmen's approval.

With the adoption of a federal constitution which left all matters of education to the several states, provision was made for it in the state constitution, but less than that required by the Law of 1647. Moreover, the aims of education had undergone changes, from the making of Christian leaders to the making of useful and intelligent citizens. Since the Latin grammar school was specifically planned for the preparation of divinity students, it was evident that it was not adapted to this new aim, and gradually we find it being superseded by a new type of secondary school, the Academy.

b. Period of the Academy

The years from 1789 to about 1840 mark the dark ages of educational history in Massachusetts. The towns had gradually been divided into school districts and after this had become an accomplished fact it was recognized by the law of 1789. By 1827 the school district had independent power to govern and even to lay taxes for its own school. Then the district proceeded to forget its school. Many districts were too poor and others too negligent to give it adequate support.

The catechism and New England Primer gave way to Webster's speller and the Columbian Orator. The ministers who had been the teachers gave way to the college students who were earning their college expenses by temporarily "keeping school". The summer term was usually taught by women. Disciplinary troubles were frequent, and only an occasional teacher survived the ordeal.

> " When we consider the meagerness of opportunity, the unfavorable physical conditions, the crowded, unhealthful, uncomfortable rooms, the inexperience and ignorance of most of the instructors, the mechanical and dreary, often meaningless task-work which went by the name of study, we are forced to conclude that other influences must have been at work - that we may have over-estimated the district school. The power and majesty with which the Mississippi sweeps by New Orleans to the Gulf were not brought by it out of Lake Itasca. But let us give the lake credit for what it did do - it set the rill a-flowing." (Martin. MASS. SCHOOL SYSTEM. p.112) (10)

We have seen that the dame-school and the grammar school tended to merge. That meant the eventual disappearance of the grammar school. The laws requiring the teaching of Latin and Greek were gradually made less strict, affecting fewer towns, until only Boston, Charlestown, Salem, Marblehead, Gloucester, Newburyport and Nantucket - all commercial towns - remained bound by them.

Lt.-Gov. William Dummer died in 1761 and left his farm in South Byfield for the establishment of a free school. He proposed that it should be of a type which he had observed in England. The Dummer Free School was opened in

1763 and Samuel Moody became its first master. One of its earliest students was Samuel Phillips of Andover. In 1778 he, with his father and his father's two brothers, John of Exeter and William of Boston, provided the funds for the opening of a similar school in Andover, and John Phillips later started a third academy in Exeter, New Hampshire. The Governor Dummer Academy, the Phillips Andover Academy, and the Phillips Exeter Academy, three of our oldest academies, are still flourishing. (Hammond, N.E. ACADEMIES, in v.xvi, p.493, of Barnards Journal of Education) 67

Other academies were founded at Leicester (1784), Derby, Bristol, Marblehead, Westford, Westfield, Plymouth and New Salem. Since some of these had been endowed by the state with a grant of land in the District of Maine, and others had petitioned for the same favor, a committee of the legislature reported in favor of granting a half township in Maine to any academy which conformed to certain conditions, thus making the academies public schools.

By 1840 eighty-nine academies were incorporated in Massachusetts;

Essex	12	Middlesex	14	Norfolk	8	Berkshire	8		
Plymouth	9	Bristol	3	Worcester	10	Barnstable	5	Dukes	2
Franklin	5	Hampshire	6	Hampden	6	Nantucket	1		

(Geo. A. Walton. ACADEMIES. In 40th Report, Mass.Bd.of Ed., p.174) 68

The purpose of the academy was to furnish the elements of a liberal education to those who could not go to college, as well as to take the place as college preparatory schools of the older grammar schools whose standards had been lowered in merging them with the district schools. With better preparation the colleges were able to raise their standards too.

But ill effects also came from the success of the academies. They enccouraged the growth of private schools and the citizens best able to support the district schools, sent their children to tuition schools, leaving the support of the district schools to those who were less well-to-do

This was the spirit of inequality which Governor Samuel Adams had foreseen and feared. (Resolves of the General Court for May 1795) 57

About this time some significant innovations from abroad began to influence our schools. Joseph Lancaster in Southwark, England, introduced his monitorial system whereby large numbers of children were taught in one large room at one time by using the older one to instruct the younger. He also made the first use of slates and blackboards, the co-ordination of reading and writing, of written spelling and dictation, and began grading.

Rousseau stimulated the work of Pestalozzi and worked out methods some of which were adopted in Massachusetts. Robert Owen started his infant school. A mechanics institute was founded in Glasgow and the Franklin Institute in Philadelphia brought it to America. All these led to the revival of education associated with the name of Horace Mann.

c. The Development of the High School

While the financial stringency of the times had caused the other towns of the states to lower their standards, resulting in the establishment of acdemies, Boston had still a very good system of public schools. They still maintained the Boston Latin School for the exclusive purpose of fitting boys for Harvard College. In 1818 the town had extended its control downward by taking in the primary or "women's schools"(dame-schools) and in 1820 proposed an extension upward by establishing an English Classical School. The sub-committee appointed to investigate, said,

> " A parent who wishes to give a child an education that shall fit him for active life, and shall serve as a foundation for eminence in his profession, whether Mercantile or Mechanical, is under the necessity of giving him a different education from any which our public schools can now furnish. Hence many children are separated from their parents and sent to private academies in this vicinity, to acquire that instruction which can not be obtained at the public seminaries. Thus, many parents, who contribute largely to the support of these institutions, are subjected to heavy expense for the same object in other towns.
>
> The Committee, for these and many other weighty considerations that might be offered, and in order to render the present system of public education more nearly perfect, are of the opinion that an additional school is required. They therefore recommend the founding of a seminary which shall be called the English Classical School, and submit the following as a general outline of a plan for its organization and of the course of studies to be pursued:
>
> 1st. That the term of time for pursuing the course of studies proposed, be three years.
>
> 2ndly That the school be divided into three classes, and one year be assigned to the studies of each class.
>
> 3rdly. That the age of admission be not less than twelve years.
>
> 4thly. That the school be for Boys exclusively.
>
> 5thly. That candidates for admission be proposed on a given day annually, but scholars with suitable qualifications may be admitted at any intermediate time to advanced standing
>
> 6thly. That candidates for admission shall be subject to a strict examination, in such manner as the School Committee may direct, to ascertain their qualifications according to these rules.
>
> 7thly. That it be required of every candidate, to qualify him for admission, that he be well acquainted with reading, writing, English grammar in all its branches, and arithmetic as far as simple proportion.
>
> 8thly. That it be required of the Masters and Ushers, as a necessary qualification, that they shall have been regularly educated at a University. (Then follows a quite revolutionary course of studies, all in English) 43

This first high school was not called that, but was "an English Classical School" to distinquish it from the "Latin classical school" in the same system. Sometimes it was called "a free academy", to distinguish it from the tuition academies, sometimes a "union school", since it often resulted from a union of several districts. The name "high school" may have come to Massachusetts from Pennsylvania where the more advanced schools were patterned after the German Hocheschule.

Another plausible theory is that this school was often located on the third floor of a building which also housed the primary and elementary schools, so the "high school" was quite literally above the school before it.

The first official use of the term is in the report of the Boston School Committee for June 23, 1824, when it was

> "Voted that the school house which the city is now building on Pinckney Street be appropriated to the use and accommodation of the 'English High School'." (This building, by the way, is still in use.) (44)

By 1852 there were sixty-four such schools reported in this state. (Hill, in How Far the High School is a Just Charge.) (14)

A law had been secured (Laws of Mass., March 4, 1826)(58) providing that in towns of five hundred families there should be a master to instruct in United States history, bookkeeping, geometry, surveying, algebra, and in towns of four thousand inhabitants, a master to instruct in Latin, Greek, history, rhetoric and logic, for all inhabitants ten months in each year.

This law was opposed by academies and private schools and was repealed but finally re-enacted in 1848, and with modifications remains to this day. Gradually the high school has taken the place of the academy, until today there are two hundred and fifty-five high schools in Massachusetts and many new buildings have been erected within the past two years by the aid of government funds now available. Today is the age of the high school.

d. The Education of Girls.

In the earlier days there was but one career open for girls and that was the career of housewife and mother. For that, no great amount of school education was required. After learning to read, the rest of a girl's education was acquired in her own home. From secondary schools girls were rigidly barred. When the to n school was opened in Dorchester it was left to the discretion of the selectmen whether girls should be admitted. They were not admitted. (Clapp, HISTORY OF DORCHESTER. Boston 1859 p.420)

In some of the earlier district schools, girls were permitted to learn to read and write. After the Revolution, some schools admitted girls at times when the boys were not present. But this was only in the summer term.

In 1789 a School for Young Ladies was opened in Medford whichattracted pupils from all over New England. In Boston as early as 1700, girls had been admitted to the "writing schools" when boys were not present. About 1787, Caleb Bingham opened a school for girls. (Am.Jnl of Education, vol.v, p.325) So many girls came that a "reading school" was established, and girls and boys alternated between the "writing" and "reading" schools, half the day in each.

Leicester, Monson, Lawrence and Bradford Academies admitted girls, among whom were some of the earlier women educators. William Woodbridge set the example from Connecticut. Rev. Joseph Emerson established schools in Byfield in 1818 and in Saugus in 1824 and taught over a thousand girls in six years.

From the Saugus School, which is still standing, Miss Zilpah P. Grant and Miss Mary Lyon received the inspiration which lead them to teach in the Ipswich Female Seminary until Miss Lyon opened her own school in South Hadley (1837) which later became Mt.Holyoke College, the first for women in America.

(Stow. MT. HOLYOKE SEMINARY, Ch.3)

Emma Willard taught for a time in Bradford Academy (1804) and in Westfield, before she went to her famous school in Troy. With William Woodbridge she prepared a text in geography. In 1829 Abbott Academy in Andover was incorporated (Stow, ch. 1, 3) (27). But still the secondary education of girls was mostly a private experiment.

In 1826 the High School for Girls was opened in Boston, but closed two years later because it had been too poular and hence was too expensive. In 1852 it was reopened as a training school for teachers. (School Review, v.vii, pp 286-294, 1899)(31). Co-education above the elementary grades was slow in gaining a hold in Massachusetts public schools, and even today, only eight of the seventeen high schools in Boston are open to both boys and girls.

The admission of girls to secondary education has more than doubled the pupil-space required in high school buildings, and has made necessary many new features which would not otherwise be required.

e. Other Movements in Secondary Education.

Brief mention will be made of but five of the movements effecting the secondary education of the state, the five which influenced architecture.

1. Catholic and Denominational Schools Some catholic schools had been conducted in very early days. But not until after the Revolution did Irish, German, and other catholics come in sufficient numbers to require schools of their own. The first catholic secondary school was opened in Georgetown, now a part of the District of Coumbia, in 1791. In 1840 Fr. James Fitton opened a seminary at Mt. St. James near Worcester which later became the College of the Holy Cross (See HISTORICAL SKETCH OF THE COLLEGE OF THE HOLY CROSS.)

Various convent schools for girls were established by the Ursuline nuns and the Sisters of Charity in Charlestown and elsewhere, and protestant as well as catholic girls attended them to acquire ladylike accomplishments.

In the beginning all the schools of the state were strongly religious in character. After the Revolution this religious instruction was no longer that of the Puritan or Congregational Church but was made undenominational. But when the catholics began to come, they complained that this instruction was protestant, even if undenominational, and not a proper atmosphere for their children if they wished them to remain catholic. They made an attempt to secure a division of school funds so that a part of the taxes might go to the support of their own schools, and, failing that, to drive the Bible out of the public schools as a sectarian book. Both attempts were only partly successful.

The first parochial schools were elementary, but more recently some excellent high schools have been added. Aside from the religious symbols, their architecture follows the general arrangement of public high schools.

Although in the southern and western states denominational schools are very plentiful, in Massachusetts not many such schools are to be found. Wilbraham and Williston are Methodist schools, there are Episcopal schools at Groton and at Southbridge, but not many others.

There are, however, a number of private schools, some of rather early establishment. Beside the academies already mentioned, there are for boys such schools as Chauncey Hall (1828) in Boston, the Noble and Greenough School (1866), the Hopkinson School, now known as Mr.Legate's (1851), the Allen School (1853), Wilbraham Academy (1824), Lawrence Academy in Groton (1793), and the Roxbury Latin School (1645), oldest private school in New England of secondary school grade. For girls there is Lasell Seminary in Auburndale (1851), the Waltham School (1860), Bradford Academy (1803), Abbott Academy (1829), and among the co-educational schools are Cushing Academy in Ashburnham (1875), Dean Academy in Franklin (1865) and Derby in Hingham (1784)

(Sargents HANDBOOK OF PRIVATE SCHOOLS)

Among the private schools not quite so old should be included the two founded by Dwight L. Moody in the Connecticut Valley, Mt. Hermon for boys and Northfield Seminary for girls.

The architecture of private secondary schools usually deviates somewhat from that of the public high school either in incorporating some homelike features or in attempting to preserve or imitate features of older times. In the Episcopal schools there seems a tendency to reflect the English public school.

2. Industrial Schools. The plan of combining manual work with study was suggested by Rousseau, put into practice by Pestalozzi, and brought to America by Philip Fellenberg and Joseph Neef. The thought was to teach pupils to be industrious and not to despise manual labor. A part of each day was spent in farm or other useful work, a part in study.

The Phillips bequest to Andover contained the idea, but the first labor schools were in other states; the Pestalozzian School (1808) and the Franklin Mechanics Institute (1824) both in Philadelphia, the Renasalaer School in New York (1824), and the Fellenberg Institute at Windsor, Conn. were early ones. Modern examples are the Moody Schools at Northfield. (SKETCH OF A PLAN OF EDUCATION, Philadelphia, 1808) Horace Mann was much interested in the movement and recommended its consideration for the schools of this state.

The Paris Exposition of 1867 had shown England was fast catching up with other nations in the beauty of manufactures since the London World's Fair of 1851 had made her conscious of her deficiencies. Hence American manifacturers petitioned the Legislature to provide for Massachusetts the sort of instruction in industrial and mechanical drawing which the S. Kensington Museum school of design had been giving to England. In 1870 these subject were made a regular study in all schools. (34th Annual Report, Mass. Bd.of Ed., p 163). Moreover, evening drawing schools were required in all large towns, where adults might learn. The one obstacle was lack of teachers. Boston employed Walter Smith of the S. Kensington School as Art Director for the city, and soon he was made Art Director for the state as well and head of the new State Normal Art School. The foundation of industrial education in this state was laid in drawing and design, the logical fore-runners of construction. Rooms specially designed for the teaching of mechanical and freehand drawing, began to appear as regular features of all high school buildings.

In 1872 the Legislature permitted towns to support free industrial schools. (Acts of 1872, ch.86) Here and there woodworking was introduced, and later, sewing and cooking. (44th Report, Mass.Bd.of Ed.,pp.179-186; 46th Report pp.217-223) In Springfield, Cambridge and Boston, special manual training high schools were established.

At first the idea was merely to broaden the curriculum , making an education for hands as well as for heads. More recently schools are being substituted for apprentice training. The Boston Trade School teaches printing, shhet metal working, painting and decorating, and other trades. Lynn has a school for shoe workers and another for electrical workers. Few modern high school buildings fail to make provision for some kind of shop work.

Even earlier some schools and academies had laboratories for physics and chemistry, and a few for biology and astronomy. Each pupil was expected to learn by his own experiments and observation. The present tendency is to extend this privilege to a larger number of students through observation of experiments which the teacher performs before the class.

We shall make no mention of kindergarten schools nor of evening schools, for while these are important movements they have not affected secondary school architecture. The Agricultural High School has appeared but is being so far confined to one in each county, beginning with the Smith School in Northampton in 1908.

3. Commercial Schools. Bookkeeping was taught in some very early schools, but the strictly commercial high school is still rare in this state. There is one in Boston, one in Worcester, and one in Springfield, but commercial rooms are features of most general high school buildings, where typing, stenography, and office practices are taught.

The first private school for business subjects was opened in 1834 by R. M. Bartlett. Peter Duff, George Comer and Jonathan Jones had taught commercial subjects privately before that date but had not yet organized schools. In 1853, Messrs. Bryant and Stratton had opened a "business college" in Cleveland. Now the Brant and Stratton schools form a chain of over fifty schools through the eastern states, with headquarters in Boston. The first business school in New England was established by George Comer in 1848. Some of the schools for business training in Massachusetts are:

Bay Path Institute, Springfield
Becker College, Worcester
Bentley School of Accounting
Berkshire Bus. College, Pittsfield
Boston Calculating School
Boston Univ., Sch of Bus Admin
Brockton Business College
Bryant and Stratton Comm'l School
Burdett College, Boston and Lynn
Chandler Secretarial School
Elliott's Comm'l School, Brockton
Framingham Business College
Fitchburg Business College
Fisher Bus. Col., Somerville, Boston
Gloucester Business College
Goddard Sch of Bus., Springfield
Greenfield Commercial School
Harvard Business School
Herrick Institute, Boston, Worcester
Hickox Secretarial School, Boston
Holyoke Commercial Institute
Kenyon's Commercial School
Lowell Commercial College
Malden Commercial School
Maltby School of Shorthand
McCarty's Business College
McIntosh Haverhill Business College
Michaud Secretarial School
Northampton Commercial College
Norwood Commercial School
Pierce Secretarial School
Salem Commercial School
Spring Secretarial School
Springfield Commercial School
Thibodeau Bus Col., Fall River
Uphams Corner Shorthand School
Watertown Shorthand School
Westfield Commercial School
(Those not otherwise designated, are in Boston) (75)

4. Physical Education. Systematic physical education was introduced into this country from Germany about 1825. Outdoor gymnasiums were established in Boston, Northampton and Cambridge. All the earlier schools of gymnastics were private ones taught by German or Swedish leaders. Later colleges took it up and Amherst and Harvard still have their original gymnasium buildings, but not now used as such. The first use of gymnastics in a secondary school curriculum was at the Round Hill School

at Northampton where Karl Beck, a German gymnast was engaged in 1826 to add physical education to its "liberal education of boys"

The Young Men's Christian Association had well equipped gymnasiums in San Francisco and New York in 1869, when the Association had been in America only eighteen years. In 1872 the Boston Y.M.C.A. bought the Tremont Gymnasium and employed its instructor, Robert J. Roberts, as director. He continued to lead classes until his retirement in 1920.

Dr. Dudley A.Sargent lead the Harvard Gymnasium almost as long, and had a normal school of his own until his death when it was bought by Boston Univ.

Baron Nils Posse of Sweden had a school for training gymnastics teachers in Boston, which still is carried on by his sons.

In the public schools, physical exercise was at first purely a pupil activity. The next step was to provide and supervise playgrounds for them. Later indoor gymnasiums were added and teachers were first permitted and later required to lead classes in calisthenics. The first puplic high school to be built with a gymnasium was the Boston English High and Latin School in 1882. Now the gymnasium is looked upon as an essential feature of a high school.

5. Military Drill. Few schools outside of Boston provide for military drill. A drill hall was a prominent feature of the school mentioned in the preceding paragraph. The annual parade of the school cadets is a day long looked forward to. This instruction, however, is not general. There are few private military schools in Massachusetts as in some other states. There is a present tendency to frown upon compulsory military drill for boys of high school age, and there is considerable agitation to do away with the parade in Boston, and possibly with the instruction too, as leading too much to the spirit of militarism. And drill halls are expensive.

f. The Junior High School and the Junior College.

In the past half century the high school has expanded horizontally by broadening its curriculum and including an increasing proportion of the young people of suitable age. It is now expanding vertically as well, including some of the former elementary grades and some of the years usually in college.

When Horace Mann became head of the school system of the state, the schools were largely ungraded. Even in the secondary schools, pupils of widely different ages were taught in the same room, and had heard each subject recited at least as many years as he had been in that room. From the standpoint of pedagogy, discipline and administration it was a long step in advance when pupils remained in one room but one year and teachers were able to specialize.

In 1888, President Elliott of Harvard criticised the 9-4 system (it was 8-4 in most other states) because he considered it a waste of time in preparing boys for college. He reported that in Europe they enter college earlier.

Therefore the National Education Association appointed a Committee of Ten to prepare a plan for adjusting the lower grades to remedy this. They reported in 1893, declaring the function of the high school to be, "to prepare for the duties of life that small proportion of all the children in the country ...who show themselves able to profit by an education prolonged to the 18th year, and whose parents are able to support them while they remain in school". In 1911, the Committee of Fifteen on the articulation of high schools and colleges, said that the function was "to return to society intelligent, able-bodied and progressive citizens". (U.S.Bulletin No.8, 1916) (77)

The suggestion made was to substitute for the 8-4 grouping a 6-6 grouping, or better yet, a 6-3-3 grouping, with an intermediate school to extend the departmentalizing of the high school from the 7th grade to include what had

been the freshman year of high school and (in Massachusetts) dropping the ninth grade altogether.

As early as 1900 some cities had adopted this plan as an administrative convenience, without thought of improving education. The development of the junior high school began in California with Bunker's reorganization in Berkeley and Francis' in Los Angeles in 1909-10. Since there is a difference in opinion as to just what constitutes a junior high school, it is a little difficult to gather statistics, but those reported to the U.S. Bureau of Education as organized each year up to the War, are as follows;

Before 1900	2	1905	1	1907	1	1908	3	1909	3		
1900	11	1911	9	1912	21	1913	27	1914	44		
1915	76	1916	68	1917	6	(Reports of U S Bu of Ed)					(78)

A departmentalized school with exploratory courses of many kinds, requires a different type of building from the elementary school. The ideal plan is to erect such a new building, or, if the city is a large one, to erect a junior high school in each quarter of the city. A model diagram would look something like Horace Mann's suggestions for the placing of a high school. Comparing;

```
_____________________________                  _____________________________________
:            :             :                  :                :                  :
:   DS       :    DS       :                  : ES       ES    : ES       ES      :
:            :             :                  :     JH         :     JH           :
:            :             :                  : ES       ES    : ES       ES      :
:__________:H S:___________:                  :_____________:H S:_________________:
:          :___:           :   1838     1937  :               :___:               :
:            :             :                  : ES       ES    : ES       ES      :
:            :             :                  :     JH         :     JH           :
:   DS       :    DS       :                  : ES       ES    : ES       ES      :
:____________:_____________:                  :_____________________________________:
```

Some cities have remodelled an elementary school building, some have used an abandoned high school building, some have built a junior-senior high school. A new junior high school building is often the best building in town. Boston has seventy-three "intermediate schools."

The Junior College can also be traced to California. In a large state, where colleges are a long distance apart, it is a great convenience to have one near enough at hand so that students may live at home while attending it.

It was this consideration which lead to the first public high school. It has also lead to the municipal university, as in Ohio. And it is one of the reasons for the junior college.

A junior college is an "institution offering two years of instruction of strictly collegiate grade" (Proceedings of Third Annual Meeting of Junior Colleges).[59] Not all junior colleges do this. They differ as widely as do junior high schools. In many places they are really six year high schools. In some places, as in Springfield, but one year is offered beyond the high school. This is the only one in Massachusetts, except the private junior colleges.

In 1923, George Zook made a survey of Massachusetts (Zook. SURVEY OF TECHNICAL AND HIGHER EDUCATION IN MASSACHUSETTS. 1923)[60] and recommended the establishment of twelve junior colleges so located that approximately ninety percent of the population would be within fifteen miles of some one of them. He proposed that the local district should furnish and maintain the buildings and equipment, that the state should pay the salaries, and that the tuition should be free. His suggestions were not adopted.

Bradford Academy, Lasell Seminary, and Atlantic Union College, are all junior colleges and there is a tendency for most of the private schools to become such. Massachusetts, however, is so small, and contains so many excellent colleges, that it is quite possible for most students, if they wish, to attend one of them while still living at home.

IV. SCHOOL BUILDINGS BEFORE HORACE MANN.

In his famous work on the History of Architecture, Professor Hamlin starts with this definition, "A history of architecture is a record of man's efforts to build beautifully". If that is to be accepted as a proper definition - and Hamlin is usually considered a standard authority - then we must carefully avoid the use of the word "architecture" in describing the school buildings of the first two hundred years in the history of this state. There is no trace of evidence in them that man made any effort at all to build beautifully. They were intended merely to serve as a shelter for master and pupils, and did not always serve well this simple purpose.

We must first consider the buildings for elementary schools, out of which secondary school buildings were to be evolved. They were of four types;

1. A room set apart in the master's house, as in a dame-school.
2. A school building containing living quarters for the master.
3. A building originally intended for some other purpose, or
4. A building erected for school purposes and nothing else.

No doubt the first type was the most comfortable if not the most convenient. We have seen how the dame-school, the fore-runner of our present elementary school, was often held in the kitchen of the good woman who had consented to be its teacher, where she could continue her spinning or knitting or other domestic duties while hearing her charges recite, or overseeing the studies of those who were awaiting their turn. In many of the smaller towns of the state, we can imagine the boys of the select group which might hope to enter Harvard, gathering daily in a like manner for instruction in Latin or Greek at the home of the minister who, more often than not, was also master of the school.

There were many disadvantages in the use of a private home for a public school, so it was generally recognized that this first type was only a temporary expedient and in many places it was not resorted to at all.

An example of the second type was the Boston Latin School, generally claimed to be the oldest educational institution in America. It was housed in a two story building on the north side of School Street (the street doubtless receiving its name from this fact), the upper story of which was occupied by the master and his family - when he had one. In 1669 we have a record that after the death of Robert Woodmansey, the "schole-master", his widow was notified that the use of the "schole house is needed by the towne", and she was asked "to provide otherwise for her selfe", and allowed an annuity of L8 during her widowhood. This building was erected in 1635, and a picture of it is reproduced in Jenk's book (Jenks. BOSTON PUBLIC LATIN SCHOOL. 1881) (7) It stood just behind the church now called King's Chapel, and on part of the burying ground. The present City Hall occupies a part of this site.

Other school houses elsewhere, provided a small room for the master as well as a room for the school, and this practice continued in some instances, well into the nineteenth century. This was particularly of use in the period following the Revolution, when the master was often a student, unmarried, who served as janitor of the school, sexton of the church, clerk of the court, and often in other capacities as well. We can imagine that his quarters were far from comfortable, but at least they were inexpensive.

The third type too, was not uncommon, and that in fairly modern times. Very frequently the school was kept in a room in the town hall, or one connected with the church, or perhaps over the village store, or in an abandoned warehouse or barn.

This same historic Boston Latin School was taught for a time in Faneuil Hall, in 1785, and later in an old barn in Cole Lane, now Portland Street, on the banks of the old Mill Pond. Then it was moved to Scollay's Building on Pemberton Hill, and when in 1812 it was installed in a fine three story building on the site of the present Parker House, the two upper stories were used as warehouses until the school expanded in 1816 to require the second story, and eventually the whole building. This was the third building of that school.

Perhaps this is a good place, since we are speaking of the Boston Latin School, to tell of its six buildings. The first, just back of the King's Chapel, was moved in 1748, after having been occupied for a hundred and thirteen years, to make way for an enlargement of the church. A new building was erected on the south side of School Street which was described as a low building with an attic, and with a cupola above, but of which no picture can be found. The third building, described in the preceeding paragraph, was built on this same site.

The fourth building was erected in 1844 on Bedford Street, and was shared with the English High School. The fifth building was begun in 1877 and occupied by the two schools in 1882. It was the wonder of the time and is described in King's Handbook of Boston as,

> "the largest structure in America devoted to educational purposes, and the largest in the world used as a free public school".

The present building was erected in 1922 in the Back Bay Fens district and is illustrated further on.

The fourth type of building is the one most frequently found, the building intended for school purposes only. Various schoolhouses differed in minor details of arrangement, but in general were much of the same plan. Usually

THE BOSTON ENGLISH HIGH AND LATIN SCHOOL

THE FIRST LATIN SCHOOL, NORTH SIDE OF SCHOOL STREET, NO.

PLATE I

there was but one room, with one or two doors, with or without entries, and with fewer windows than were needed, with inadequate heat and ventilation.

Since the "deestrick skule" of 1817 which is described by Martin was certainly no better and probably not much different from the schools which had preceded it, we may well quote, (Martin, MASS. SCHOOL SYSTEM, p.94)(20)

" In a choice of a site for the shrine to Minerva, upon one point there was unanimity: the land must be valueless, or as nearly so as possible, for frugality was ever a New England virtue. A barren ledge by the road side, a gravelly knoll, the steeply sloping side of a bosky ravine, the apex of the angle of intersecting roads - such as these were choice spots, provided one could be found near enough to the geographical center of the didtrict...

The size and architectural features of the building varied with the populousness, wealth and liberality of the district. Judged by the standards of the present day, they were all too small. It was no uncommon thing to find more than a hundred children crowded into a room thirty feet square. But the internal arrangement made crowding easy. In the rural districts the fireplace and door often occupied one end of the room. In the middle of one side was the teacher's desk. Against the wall on three sides, was a slightly sloping shelf, with a horizontal one below, and a bench without a back in front.

On the bench the older pupils sat; on the sloping shelf they wrote; on the one below they kept their books. Thus, in writing, they faced the wall. Another lower bench in front served for a seat for the younger pupils who did not write.

Thus, the school was arranged on three sides of a hollow square. How many pupils the room could hold depended on how closely they could be packed on the benches. In the center of the square the classes recited.

In another type of school room the seats were arranged in long rows across the room, in terraces, the back seats only having desks in front; the older pupils thus overlooked the younger ones, the teacher having an elevated platform opposite. The descent of the pupils from their high seats to the floor, coming in contact perhaps with some unconsciuosly extended foot, was often sudden and abrupt.

The seats and desks were of native wood, pine or oak, worked out by hand, unpainted, never elegant, often crude in the extreme. When the carpenter's work ended the boys' work began, and in the process of time, the furniture was carved with an elaboration of tracery which the most enthusiastic devotee of sloyd wight hope in vain to excel."

All authorities who have written in or of this time and who have described its schoolhouses, agree that they were a disgrace to those who built them, as well as to the school boards which permitted them to remain in such an unimproved condition. Mr. Martin says,

" They were a menace to the health of the pupils and a disgrace to the communities which owned them".

And yet for two hundred years, they had seemed good enough, and had provided the education for the leaders whose names honor the history of Massachusetts.

In 1831, the American Institute of Instruction offered a prize for the best essay on the construction of schoolhouses. The prize was ~~one~~ won by William A. Alcott, but another essay which was not submitted in time for the prize, was considered so good that it was published with the prize winning one. This was by the Rev. William Woodbridge, a Connecticut educator who later became the first master of the Phillips Academy in Exeter, and who was one of the pioneers in the education of girls. (Woodbridge. ON THE CONSTRUCTION OF SCHOOL HOUSES.Boston 1831) (2)

To those who are able to read between the lines, Mr.Woodbridge's suggestions for an ideal schoolhouse are quite revealing of the deficiencies of the schoolhouses common in his day.

" LIGHT. Windows for a school room ought to be high, for several reasons: 1. When low, the light is interrupted by every intervening object, and throws the pages of the reading and writing book into shade.

2. Low windows, when opened, bring a current of air directly upon the pupils, and expose them before it.

3. Low windows incline the scholar to look out. At least one upper sash ought to be hung with a weight, that it may be let down in order to allow the hot and lighter exhalations, which rise to the ceiling, to escape.

4. The saving of glass would be a serious advantage in point of convenience and economy: for lower windows are often broken, and often go for a long time unmended, from the neglect of committees.

5. The same quantity of glass in a skylight, would produce double the quantity of light. The skylight also might be hung so as to air the room often and easily.

HEAT. Heat in a schoolroom ought to be equally diffused through every part. this can rarely be done without a stove. No seats or benches ought to touch the floor therefore, to prevent the free circulation of warm air to the feet. Such seats also would interrupt the sweeping, which ought to be done daily and well. The fire ought to be kindled early in the morning; + otherwise children become uneasy and fretful, and nothing goes on well. When the warm air of stove heat meets the scholars' cheeks as he enters the school, he is at once pleasant and easy. On the other hand, too great a

degree of heat renders the scholars uneasy, listless and fretful, and the teacher becomes more languid.

There ought to be a thermometer in every schoolroom, and the heat regulated to fifty-five or sixty degrees. When the room is well warmed in the morning, little if any additional fuel will be necessary until noon. The breath and perspiration of a school will keep up the temperature of the room until nearly noon, when the heat ought to abate to prevent too great a change in passing into the cold air. The same regulation should be observed in the afternoon, and especially in the evening school. There should be a footboard about the stove, for to sit with wet feet for several hours, produces uneasiness. An open fire is sometimes dangerous to children dressed in cotton. I have two or three whose clothing has taken fire. The fire should not be renewed without the teacher's direction.

AIR. The quantity of fresh air necessary to life amounts to more than one gallon for each person for every minute. In looking back over the langor of fifty years of labor as a teacher I attribute a greater proportion of it to mephitic air. I cannot doubt that this has been the great cause of the sickly habits and untimely decease of many worthy teachers. A few have prolonged life until death has given them a fair discharge, but it is to be noted that they were men of temperance, either from inclination, virtue or necessity. Why not be more liberal of space and air?

GENERAL CONSTRUCTION. I would place the teacher on an elevated platform, 18 to 24 inches above the floor, from which his eye can easiest view every part. This platform may serve as a stage for speaking select pieces. In front, on either side of the teacher's desk, should be a board ten inches wide, for a class to rest their books upon when they are receiving lessons, or occasionally to place an idler at, to study. Behind the teacher's platform ought to be a book closet for maps, apparatus or instruments. A clock costing as much as five dollars would save its cost every week, besides fixing the habit of punctuality. Time is money. Every minute lost in a school of forty-five scholars amounts to three-fourths of an hour. And all this may be saved by the punctuality which a clock makes". (2)

With these suggestions, Mr. Woodbridge appends a plan of what he considers an ideal schoolhouse. This plan made such a profound impression upon Horace Mann that seven years later he included it in his own report on the conditions of schoolhouses as he found them in Massachusetts, and commended Mr. Woodbridge's plan to committees intending to erect newer and better buildings. He also drew a plan of his own, slightly modifying this one in a few details only; and that plan, suggested by Mr. Woodbridge's, was copied by Henry Barnard in his article on School Architecture in the Builder's Guide, a book which he published in 1846 in collaboration with Henry Austin, an

architect. (Austin. BUILDER'S GUIDE. Hartford 1846) (3)

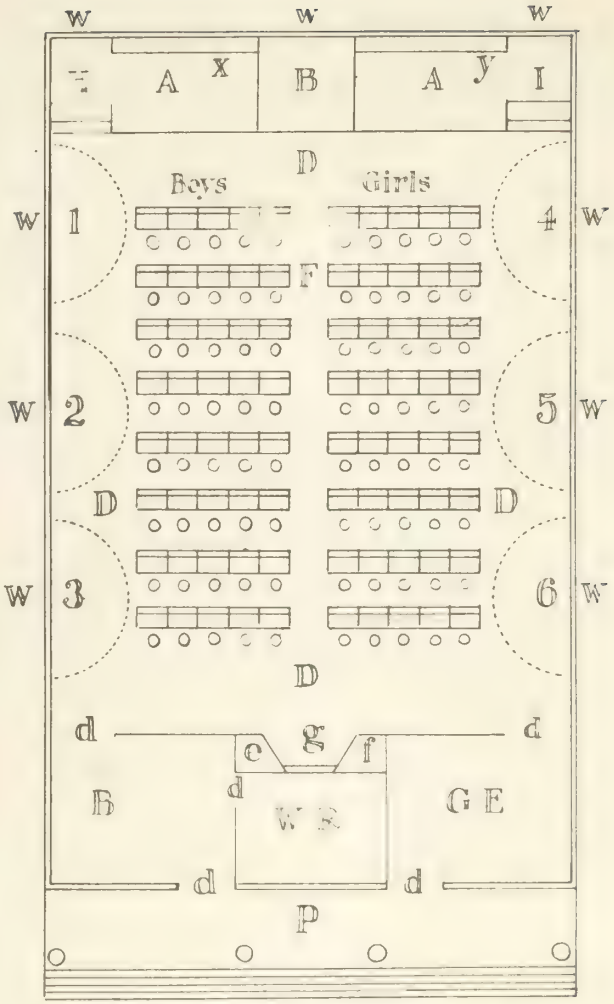
One of the few buildings still standing, of the type which was characteristic of the period before this reform began, is the original building of the first academy, the Dummer Academy, now preserved in South Byfield. It was erected in 1762. Another is the old schoolhouse in Wayland, bought and restored by Henry Ford.

POSSIBLY THE FIRST PLAN EVER DRAWN FOR A MASSACHUSETTS SCHOOL HOUSE.

Designed by Rev. William Woodbridge, first principal of the Phillips Exeter Academy, and published with the prize essay on the Construction of School Houses by the American Institute of Instruction in Boston 1831. (2)

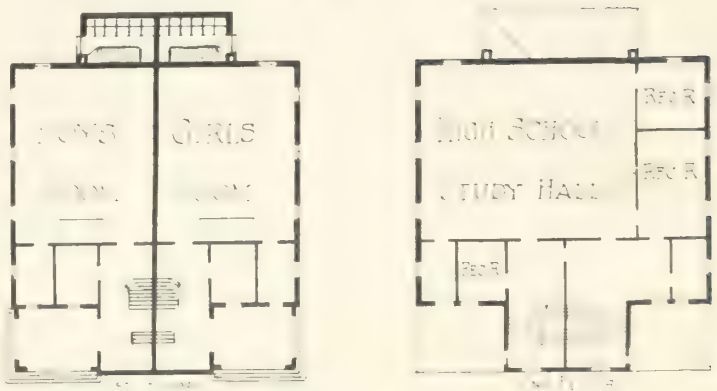
EXPLANATION OF THE PLAN

P	-	Doric portico in front of the School-house
d d d d		Doors
B E	-	Boys' entry, 12 by 10 feet
G E	-	Girls' entry, 12 by 10 feet
W R	-	Wood-Room, 11 by 8 feet
g	-	Fire place
e	-	Closet
f	-	Sink, to be concealed by a falling door balanced with weights
D D D D		Pasage around the room, 6 feet wide
123456		Stations marked on the floor to be used by classes when reciting to monitors.
A B A		The teacher's platform, extending across the room, 6 feet wide and 9 inches high.
B	-	A part of the platform, to be removed in winter, if necessary, to make room for a stove.
x	-	Cabinet for apparatus, specimens, etc.
y	-	Bookcase
H	-	Master's Desk
I	-	Assistant or Monitor's Desk
F	-	Centre Passage; in the plan drawn 3 feet wide, but 4 feet would be better.



Woodbridge's Ideal School House 1831

Groton



A Combination School House of 1873.

V. THE INFLUENCE OF HORACE MANN AND HENRY BARNARD ON THE PLANNING OF SCHOOL HOUSES.

From the building of the Boston Latin School in 1635 to the publication of William Woodbridge's plan in 1831, many hundred schoolhouses had been built in Massachusetts. And yet the plan by Woodbridge was practically the first ever to be drawn for a school building in this state. That is a seeming paradox, but is explained by the fact that schoolhouses were just built, not planned. For the first two hundred years, folks would no more have thought of engaging an architect to plan a schoolhouse than they would have engaged one to plan a chicken coop or a wood shed. Any carpenter could put up a house good enough for any one of these simple and ordinary uses.

Upon first taking office as the pioneer secretary of the newly formed State Board of Education, Horace Mann was shocked at the deplorable condition of the eight hundred schoolhouses which he personally visited and the thousand others which he investigated. So important did he consider the situation as to school buildings that he wrote a separate report on the subject and appended it to the first report of his work as Secretary. In it he says,

> " As long ago as 1832 (he was writing in 1838), it was said by the Board of Censors of the American Institute of Instruction, that 'if we were called upon to name the most prominent defects of the schools in our country - that which contributes most, directly and indirectly, to retard the progress of public education, and which most loudly calls for a prompt and thorough reform - it would be the want of spacious and convenient schoolhouses'.
>
> As a general fact, I do not think the common, district schoolhouses are better now than when the above remark was written. I have therefore thought that I could, at this time, in no other way more efficiently subserve the interests of the cause in which we are engaged, than in bringing together and presenting under one view, the most essential points respecting the structure and location of a class of buildings which may be said to constitute the household of education.
>
> I do not propose to describe a perfect model and to urge a universal conformity. It is obvious that some difference in construction is necessary, according to the different kind of school to be kept. In each case it must be considered whether the school room be that of an academy or of an infant school; whether it be in the city or in the country; for

males or for females, or both; whether designed to accommodate many scholars or few, or whether the range of studies to be pursued is extensive or elementary only. The essentials being understood, the plan can be modified for adaption to each case.

The schoolhouses in the State have a few common characteristics. They are almost universally contracted in size; they are situated immediately upon the roadside, and are without proper means of ventilation. In most other respects the greatest diversity prevails.

The floors of some are horizontal; those of others rise in the form of an amphitheatre, on two, sometimes on three sides, from an open area in the center. On the horizontal floors the seats and desks are sometimes designed only for a single scholar; allowing the teacher room to approach on either side, and giving an opportunity to go out or into the seat with-out disturbance of anyone. In others, ten scholars are seated on one seat, and at one desk, so that the middle ones can neither go out nor in without distrbing at least four of their neighbors. In others again, long tables are prepared at which the scholars sit face to face like large companies at dinner. In others the seats are arranged on the sides of the room, the walls of the house forming the backs of the seats, and the scholars as they sit at the desks, facing inwards; while in others the desks are attached to the walls and the scholars face outwards. The form of the schoolhouses is, with very few exceptions, that of a square or oblong. Some, however, are round, with an open circular area in the center of the room, for the teacher's desk and a stove, with seats and desks around the wall, facing outwards, separated from each other by high partitions, which project some distance into the room, so that the scholars may be turned into these separate compartments, as into so many separate stalls. In no particular does chance seem to have had so much sway as in regard to light. In many, so much of the wall is occupied by windows that there is very little difference between the intensity of the changes of light within and without the schoolroom; while in some others there is but one small window on each of the three sides of the house and none on the fourth.

Without specifying further particulars, however, it seems clear that some plan may be devised, combining the substantial features and avoiding the defects of all. (Here follows a plan he did devise, illustrated in a plate shown further on)

In the Report (his first annual report to which this is a supplement) it was observed that "when it is considered that more than five-sixths of all the children of the State spend a considerable portion of the most impressionable period of their lives in the schoolhouse, the general condition of those buildings and their influence on the young stand forth at once as topics of prominence and magnitude. The construction of school houses connects itself closely with the love of study, with proficiency, health, anatomical formation, and length of life. These are great interest and therefore suggest great duties. It is believed that, in some important particulars, their structure can be improved, without the slightest additional expense; and that in other respects, a small advance in cost would be returned a thousandfold in the improvement of those habits, tastes, and sentiments of our children, which are so soon to be developed into public manners, institutions and laws, and to become unchageable history".

It will be observed that Mr. Woodbridge, Mr. Mann and Mr. Barnard, like other writers of the day, use the word "schoolhouse" and "schoolroom" interchangeably, seeming to indicate that one-room schoolhouses were the rule up to that time. It is also to be noticed that Mr. Mann hints, what seems indeed to have been the fact, that until then there was very little difference in plan between an elementary school and a secondary school, or as he puts it, "an infant school or an academy".

With the preface which we have quoted, Mr. Mann procedes through fifty-three closely printed pages, to give his views on how a schoolhouse should be planned, as to

> "(1) ventilation and warming, (2) size, (3) desks, seats, etc., (4) location, (5) light, windows, (6) yards or playgrounds, and (7) duties of instructors in relation to schoolhouses". (61)

In bringing his most convincingly worded, and as it turned out, epoch-making report to what is evidently a reluctant close, he calls attention to the Woodbridge plan which had been published in 1831 by the American Institute of Instruction, and includes a reproduction of that plan as part of his report.

In recommending the wide adoption of the plan he says,

> " What citizen of Massachusetts would not feel an ingenuous and honorable pride, if in whatever direction he should have occasion to travel through the state, he could go upon no highway, nor towards any point of the compass, without seeing, after every interval of three or four miles, a beautiful temple, planned according to some tasteful model of architecture, dedicated to the noble purpose of improving the rising generation, and bearing evidence, in all its outward aspects and circumstances, of fulfilling the sacred object of its erection."

One cannot help wondering what would be Mr. Mann's gratification if he could see his dream literally fulfilled as it is today, one hundred years later, with such buildings as are illustrated in a later chapter.

He goes on to say,

> "In the preceding remarks, I have suggested defects in the construction of our schoolhouses..but..although often injudiciously located, unsightly without and uncomfortable within, yet, more than anything else, they tend to convert the hope of the philanthropist into faith, and they fill him with a gratification a thousand times nobler and more rational than the sight of all the palaces in the Old World. HORACE MANN
> Secretary of the Board of Education
> Boston, March 27th, 1838."

In his Second Annual Report, one year later, Mr.Mann reviews the conditions he had found a year earlier, and expresses his gratification that

> "the efforts which have been made in different places (to remedy some of the most glaring defects) have accomplished something already, and have given sure auguries of a speedier progression hereafter".

He cites Salem as an example, saying,

> " A year ago, the schoolhouses of that city were without ventilation and many of them with such seats as excited vivid ideas of corporal punishment, and almost prompted one to ask the children for what offence they had been committed. At an expense of about two thousand dollars the seats in all the schoolhouses, except one, have been reconstructed, and provisions for ventilation have been made. I am told that the effect in the quiet, attention and proficiency of the pupils was immediate."

By such tactful reasoning, and the judicious use of praise, mingled with his own delicate humor, Mr. Mann accomplished more as an adviser than perhaps he might have accomplished had he possessed all the authority of the Prussian state, whose school system he often held up as an example of what could be.

Encouraged by the evidence that some communities were trying to improve the conditions of their schoolhouses, and doubtless in the hope that others might soon consider the erection of new and better ones, Mr. Mann presented his own idea of what a schoolhouse should be.

It will be observed that the principal modification of the Woodbridge plan is the single seat and desk for each pupil, the substitution of a recitation room for the semi-circles on the floor, and the slight provision for grading. Mr. Mann's explanation of his schoolhouse plan, follows:

EXPLANATION OF MR. MANN'S MODIFICATION OF THE WOODBRIDGE PLAN (3)

A - Represents the teacher's desk

BB - Teacher's platform, from one to 2 ft. in height

C - Step for ascending the platform

LL - Cases for books, apparatus, cabinet, etc.

H - Students' single desks, 2 ft. by 19 inches

M - Pupil's seat, 1 ft. by 20 inches

I - Aisles, 1 ft. 6 inches in width

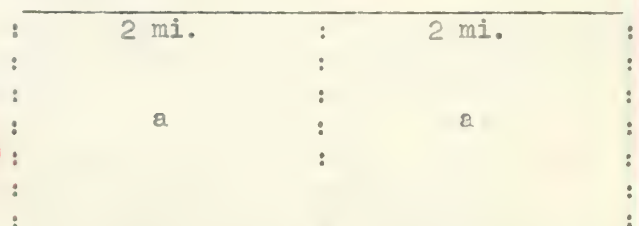
D - Place for stove, if one is used

E - Room for recitation, for retirement in case of illness or sudden indisposition, for interview with parents when necessary, &c. It may also be used for the library, &c.

FFFFF Doors into the boys' and girls' entries - from the entries into the schoolroom, from schoolroom into recitation room.

GGGG Windows. The windows on the side are not lettered.

To avoid the necessity of fitting up the same schoolroom for old and young, and the inefficiency of such country schools as we now have, I propose a union, for instance of four districts which do not cover more than four miles square, and the erection of four primary school houses (aaaa) for the younger children of each district, to be taught by female teachers, and one central or high school, (A) for the older children of the four districts, taught by a well qualified male teacher. This plan is recommended for its wise use of the means of the districts, and the efficiency of the instruction given."



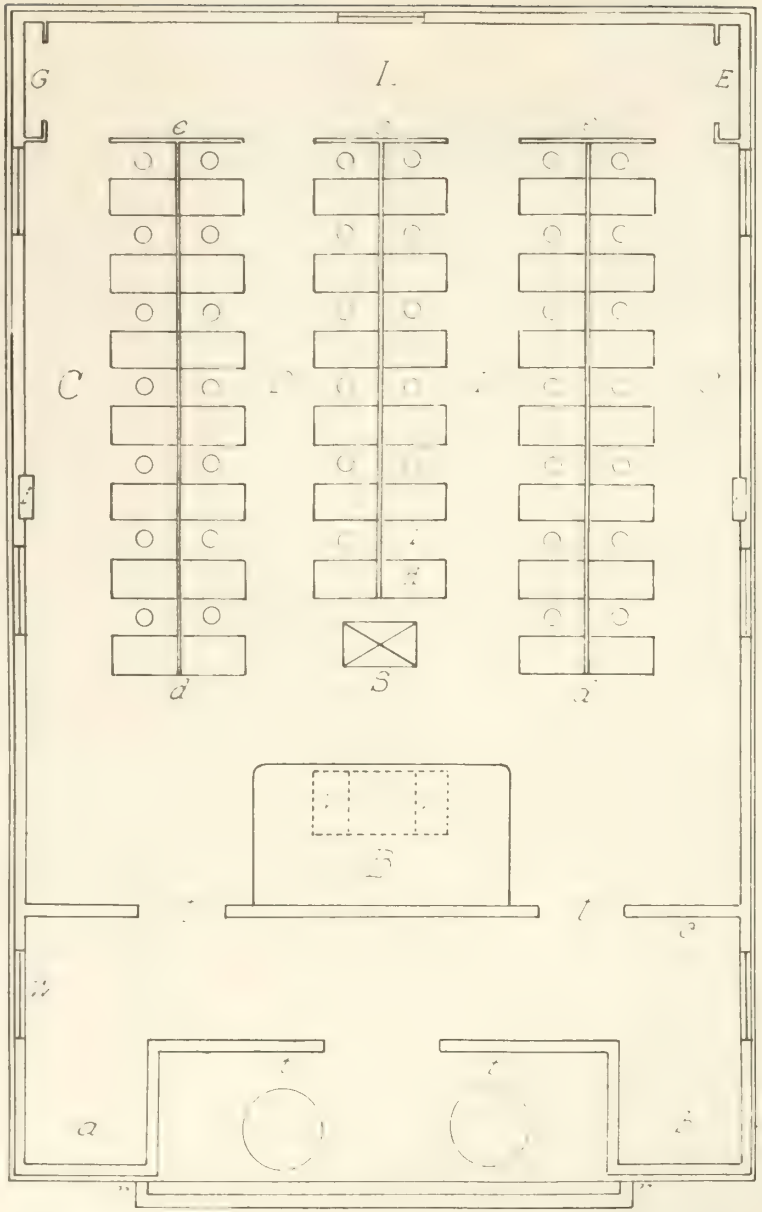
This plan of Horace Mann's was included in Henry Barnard's "Principles of School Architecture" (4) published in 1851. As has already been noted, it is strikingly similar to the plan now generally used in locating junior high schools. Note Mann's use of the term "high school".

Although some might contend that Henry Barnard has no place in a thesis dealing primarily with Massachusetts, still his influence was much wider than any one state, as was that of Horace Mann. These three are hardly to be thought of apart from each other: William Woodbridge, who was not content with pointing out the defects in the schoolhouses of his day but put his constructive suggestions into the form of a plan; Horace Mann, who succeeded in inducing Massachusetts committees to adopt this plan, or some plan, and actually to build schoolhouses that had been carefully planned beforehand; and Henry Barnard, who rallied architects and others to a sympathetic and systematic study of the art of schoolhouse planning. These three men, in these three states and steps, are responsible for the beginning of school house architecture in Massachusetts and in New England and in America.

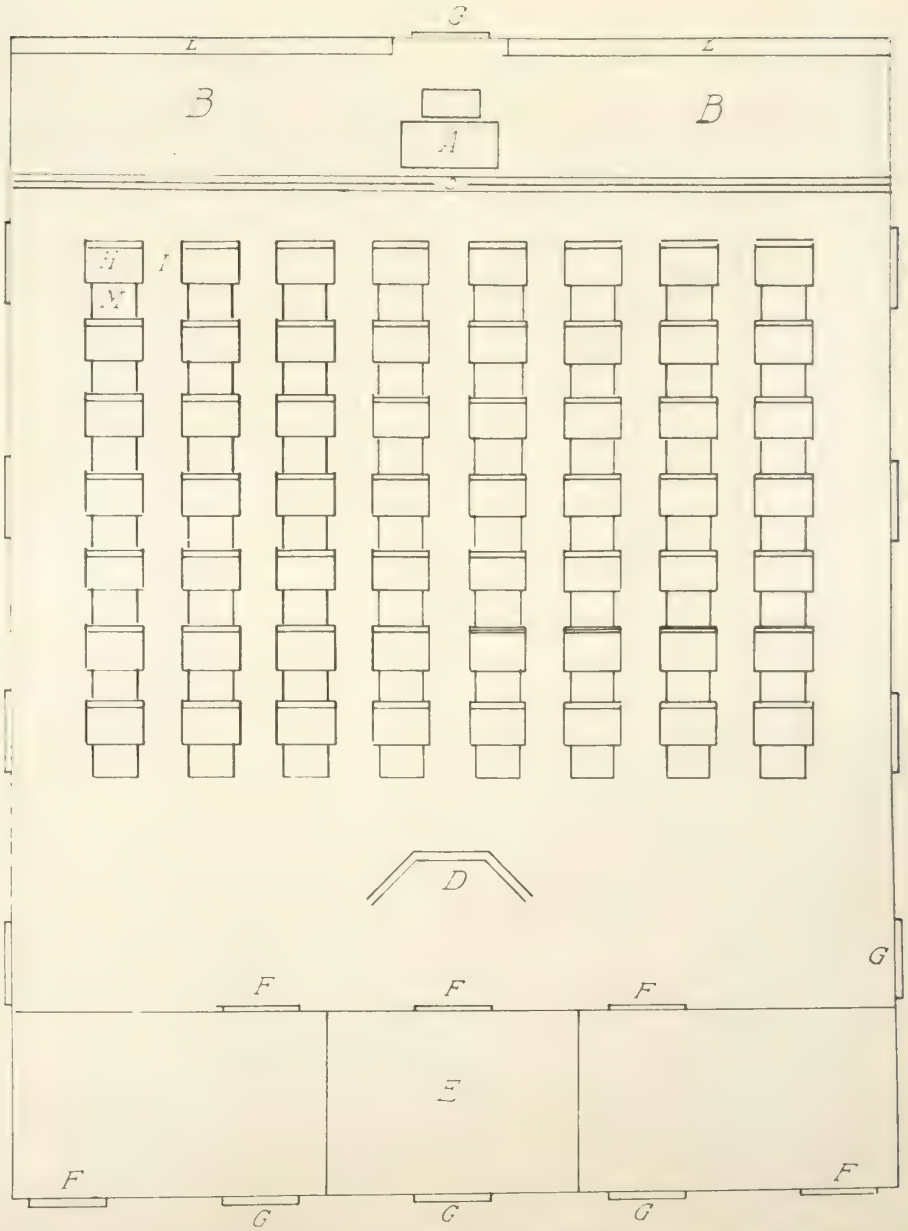
Henry Barnard was a most prolific writer, and no less than five books from his pen are devoted to the subject of school architecture. All of these books are illustrated by numerous plans and woodcuts of schoolhouses already built, and model plans for others.

In the Builder's Guide, a book on architecture published in 1846, to which Barnard contributes a section on Schoolhouse Architecture, he speaks of much the same defects that Woodbridge and Mann had observed, and says, under the heading of COMMON ERRORS IN SCHOOLHOUSES, p.23, (4)

> " They are almost universally badly located, exposed to the noise, dust and danger of the highway, unattractive, if not positively repulsive in their external and internal appearance, and built at the least possible expense of material and labor.
>
> They are too small. There is no separate entrance for boys and girls appropriately fitted up; no sufficient space for the convenience of seating and necessary movements of the scholars; no platform, desk or recitation room for the teacher.
>
> They are badly lighted. The windows are inserted on three or four sides of the room, without blinds or curtains to prevent the inconveniences and dangers of cross-lights, and the excess of light falling directly on the eyes or reflected from the book, and the distracting influence of passing objects and events out of doors.



Plan of School House drawn by Henry Barnard 1846



Plan of School House drawn by Horace Mann in 1840

PLATE III

They are not properly ventilated. The purity of the atmosphere is not preserved by providing for the escape of such portions of the air as have become offensive and poisonous by the process of breathing and by that matter which is constantly escaping from the lungs in vapor, and from the surface of the body in insensible perspiration.

They are imperfectly warmed. The rush of cold air through cracks and defects in the doors, windows, floors and plastering, is not guarded against. The air which is heated is already impure from having been breathed, and made more so by noxious gases arising from the burning particles of vegetable and animal matter coming in contact with the hot iron. The heat is not equally diffused, so that one portion of the school room is frequently overheated, while another part, especially the floor, is too cold.

They are not furnished with desks and seats, properly made and adjusted to each other, and arranged in such a manner as to promote the comfort and convenience of the scholars, and the easy supervision on the part of the teacher. The desks are too high and too long, with no suitable support for the back*, and especially for the younger children. The desks are too high for the seats, and are either attached to the wall on three sides of the room, so that the faces of the scholars are turned from the teacher, and a portion of them at least are tempted constantly to look out of the window - or the seats are attached to the wall on opposite sides, and the children sit facing one another. The aisles are not so arranged that each scholar can go to and from his seat, change his position, have access to his books, attend to his own business, be seen and approached by the teacher, without incommoding any other.

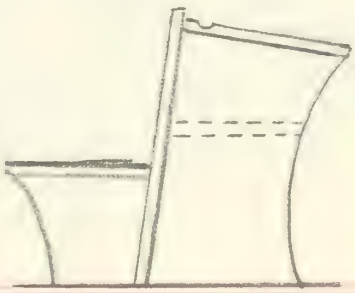
They are not provided with blackboards, maps, clock, thermometer, and other apparatus and fixtures which are indispenible to a well regulated and instructed school.

They are deficient in all of those in- and out-door arrangements which help to promote habits of order and neatness and cultivate delicacy of manners and refinement of feeling. There are no verdure shrubs, trees and flowers for the eye, no scrapers and mats for the feet, no hooks and shelves for cloaks and hats, no wall, no sink, basins and towels to secure cleanliness, and no places of retirement for children of either sex." (4)

Having listed the faults which he finds in the schoolhouses of his day, Barnard proceeded as Woodbridge and Mann had done, to point out in detail what he thought should be done about it. Like them he draws a plan of his own copied partly from theirs, but with certain modifications. A schoolhouse was

---

* Barnard seemed much impressed with Horace Mann's suggestion of a desk with a seat attached to it so that each desk formed a back for the seat in front of it. He reproduced this in a number of his books and suggested certain modifications. "The desk slopes 2 1/2 inches in 16. The seat also inclines a little from the edge. The seats vary in height from 9 1/2 inches to 17. The desks are 2 ft. long".

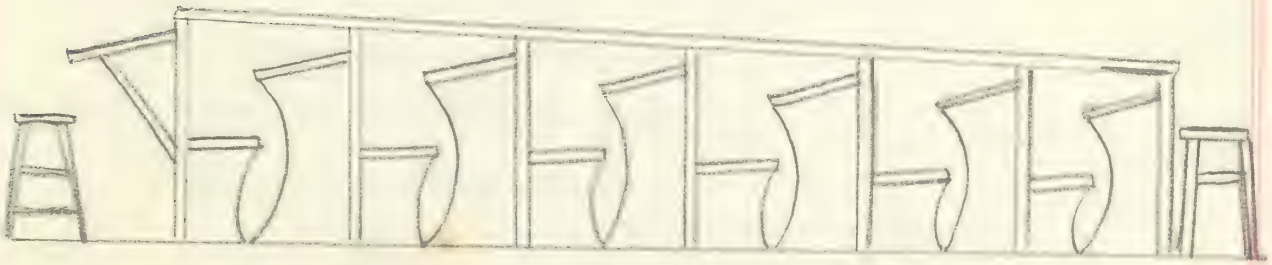


actually built from this plan in the Washington District of Hartford, Conn., and subsequently the same internal arrangement appears in schoolhouses in Peacedale, R.I., and in South Kingston, Carolina Mills in Richmond, and in the lower room of the academy at Kingston, all in the same state.

The most interesting features of his plan may possibly have been suggested to him by the arrangement in the old time churches with which he must have been familiar. It is the partition extending from the floor to four inches above the tops of the desks. He says for it,

> " It secures greater firmness to each desk, and separates the pupils as effectively as an aisle of the ordinary width. The seat can be attached to the desk, or a chair can be used as is represented in the plan. To accommodate two of the largest pupils in winter, a desk like a table leaf can be attached to the highest part of each range, and to accommodate the same number of smaller children in the summer, movable sand desks can be placed at the lowest end, if it should be thought desirable to use sand, before using the slate, as is done in the New York primary schools".

By sand desks, Barnard does not mean the type of sand table which is so often found today in kindergarten and primary rooms, but rather a desk with a shallow depression in the top, in which a thin layer of sand can be placed wherein the beginners may trace their letters with their fingers, before being allowed to draw them on a slate.



The plan itself, which is shown on the same plate with Mann's, has this explanation or legend, (3)

"The exterior dimensions are 40 ft. by 26 ft., and the schoolroom, exclusive of the recess for the pillars, and the entry, is 30 ft. by 25.

A - Entry, one side of which (a) is fitted up for girls, and the other side (b) for boys.

B - Teachers' platform, 9 ft. long by 4 ft. 6 in. wide, and 9 inches high, with a blackboard occupying the wall behind.

VV - Teacher's desk.

CC - Side aisles, 3 ft. wide

L - Rear aisle, 4 ft. wide.

DD - Aisles, each 2 ft. 7 inches.

S - Stove

H - Desk

I - Chair

d - Sand desk.

e - Leaf, etc.

i - Smoke flue.

h - Ventilating flue with opening at top and bottom.

ww - Seven windows.

rr - Scrapers for feet.

tttt Mats

c - Sink for water pail, basin, etc.

E - Closet for library of 600 vols.

G - Closet for apparatus, etc."

Beside his own plan, which has just been described, Barnard published a number of other plans, both of schoolhouses recently built, and also of model plans proposed. In his contribution to School House Architecture in 1846, already referred to, one of the most interesting of these model plans is that for an octagonal building. He says of it,

" The octagonal shape will admit of any number of seats and desks, accor-ding to the size of the room, arranged parallel with the sides, constructed as described in specifications (see the desk suggested by Horace Mann, sketched at the bottom of p.51), or on such principles as may be preferred. The master's seat may be in the center of the room, and the seats be so constructed that the scholars may sit with their backs to the center, by which their attention will not be diverted by facing other scholars on the opposite side, and yet so that at times they may all face the master, and the whole school be formed into one class. The lobby next to the front door is made large (8 x 20) so that it may serve for a recitation room. The lobby to finish eight feet high, the inside wall to show like a screen, not rising to the roof, and the space above be open to the schoolroom, and used to put away or station school apparatus. This screenlike wall may be hung with hats and coats, or the triangular space next to the window may be enclosed for this purpose. The face of the octagon opposite to the porch has a wood house attached to it serving as a sheltered way to a double privy beyond. This woodhouse is open on two sides to admit of a cross draft of air, so preventing the possibility of a nuisance. Other wing rooms may be attached to the remaining sides of the octagon, if additional conveniences for closets, library or recitation rooms be desired.

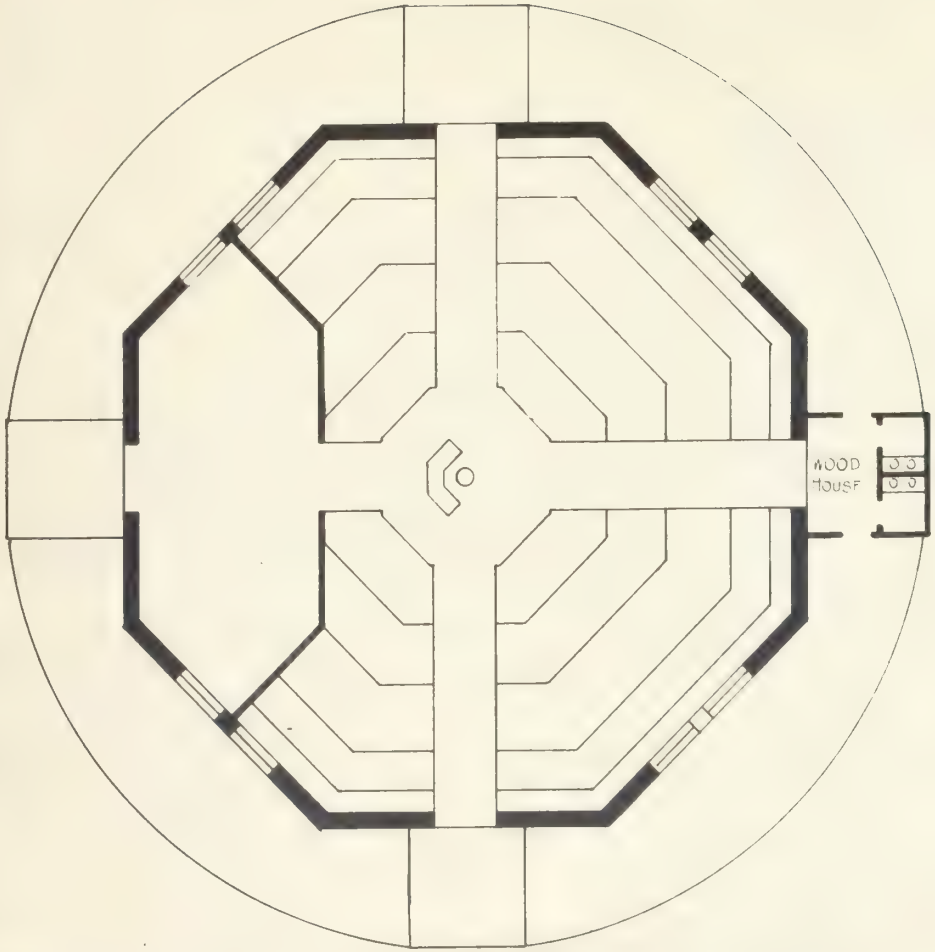
The mode here suggested of a lantern in the center of the roof for lighting all common schoolhouses, is so great a change from common usage in our country that it requires full and clear explanation for its execution, and plain and satisfactory reasons for its general adoption and of its great excellence in preference to the common mode.

1. A skylight is well known to be far better and stronger than lights from the side of the building in cloudy weather and in morning and evening. The difference is of the greatest importance. In short days (the most used for schools) it is even more so.

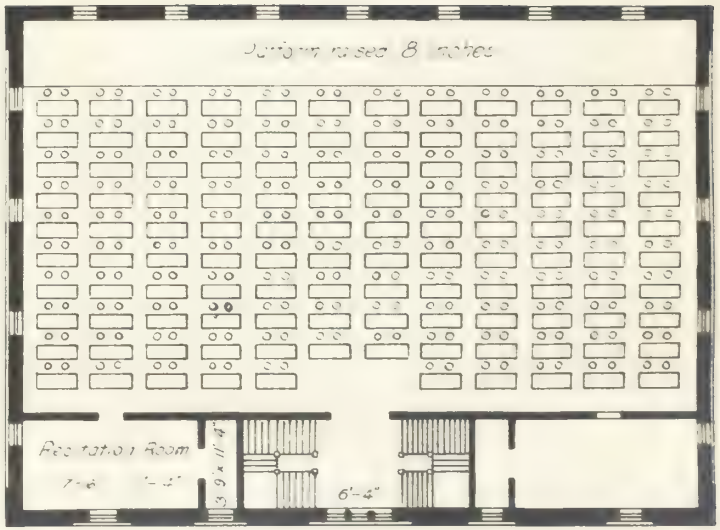
2. The light is far better for all kinds of study than side light from its quiet uniformity and equal distribution.

3. For smaller houses the lantern may be square, a simple form easily constructed. The sides, whether square or octagonal, should incline like the drawing (an elevation not here copied), but not so much so as to allow water condensed on the inside to drop off, but run down on the inside to the bottom, which should be so formed as to conduct it out, by a small aperture at each bottom pane of glass.

4. The glass required to light a schoolroom equally well with side lights would be double what would be required here, and the lantern would be secure from common accidents, by which a great part of the glass is every year broken.



Octagonal School-House by Town & Davis about 1840 for H. Barnard



Plan of Second Floor. Brimmer School
Boston

5. The strong propensity which scholars have to look out by a side window would be mostly prevented, as the shutters to side apertures would only be opened when the warm weather required it for air, but never in cold weather, and therefore no glass would be used. The shutters being made very tight, by calking in winter, would make the schoolroom much warmer than has been common, and being so well ventilated, and so high in the center, it would be more healthy.

6. The stove, furnace, or open grate, being in the center of the room, has great advantages, from diffusing the heat to all parts, and equally to all the scholars; it also admits the pipe to go perpendicularly up, without any inconveniences, and it greatly facilitates the ventilation, and the retention or escape of heat, by means of the sliding cap above". (Here follows a lengthy detail of the construction) (3)

A concept of pedagogy and school administration which had a great effect on all school building up to this time was that of the one-room, one-teacher school. It was taken for granted that all the pupils in the school must be at all times within the sight of "the" master. In the ungraded schools - and practically all schools were ungraded - the common plan was to assign a lesson to be studied, or a set of problems to be "ciphered", or a written exercise to be copied "in a fair, round hand", for the pupils in different stages of their schooling, and while seven-eighths or more of them were thus engaged, to hear the other one-eighth recite. The pupils reciting were usually called forward to the master's desk, where he could keep his eye on them and at the same time on the pupils who were supposed to be studying.

The first marked departure from this plan was the method devised by Joseph Lancaster in England which has come to be known as the monitorial or Lancastrian system. In this system, some of the older pupils were used as instructors of certain groups of younger ones. In this way it was possible for several recitations to go on in the same room at the same time, the master devoting himself to the supervision of the entire room, rather than to that of any one group. By this means it was possible to instruct a very large number of pupils in one large room. This plan was tried in the United States, in fact it was used in the first girls' high school in Boston, but it was never

very widely adopted here. However, its influence is noticeable in two features of our older schoolhouses; 1. The plan for several recitations at once, and 2. the seating of many pupils in one room for study.

In the William Woodbridge schoolhouse plan, the semi-circles marked on the floor for the pupils to "toe the mark" while reciting to monitors, is evidently a survival of this influence, and the seating of many pupils in the same room is another.

One notices in Barnard's early books on schoolhouse planning that it is not uncommon to find schoolrooms planned to seat a hundred or more pupils, indicating that this was a more or less usual practice. In fact, in his 1856 book, he includes a plan of the second floor of the Brimmer School in Boston (shown on the same plate with his octagonal schoolhouse) which represents a room

> "70 feet by 37 ft. wide, and 15 ft. in the clear, which contains 118 desks and 236 chairs of four sizes. The scholars sit with their backs to the platform."

In the Report of the School Board for 1901 (Annual Reports of Boston Sch. Bd.)

> "The Brimmer School was established in 1843 to accommodate the surplus pupils in the Adams, Winthrop, and Franklin Schools, and was opened on January 1, 1844, (So that it was a new and very up-to-date school when Barnard wrote about it) under the double-headed system. It received its name in honor of Martin Brimmer, Mayor of Boston during 1843-4. The building is located on Common Street (formerly Nassau Street) on the site of the old Franklin Schoolhouse, and contains 14 rooms and a hall. Martin Millmore, the sculptor, was a former pupil of this school, and his will contained a bequest of $500, the income of which is expended by the master to aid in clothing poor children who attend the Brimmer School. Area of site 11,401 square feet."

Evidently the room shown is used as a study room only, supervision over such a large number being better assured when the master is behind them.

Both Mann and Barnard were conscious that better results could be obtained if the older pupils and the younger ones were taught in separate rooms by separate teachers. Mann had suggested a solution of this problem by

having primary schools for the younger children in separate houses near their homes, with "female teachers", while the older pupils travelled a bit farther to some central building taught by a male teacher.

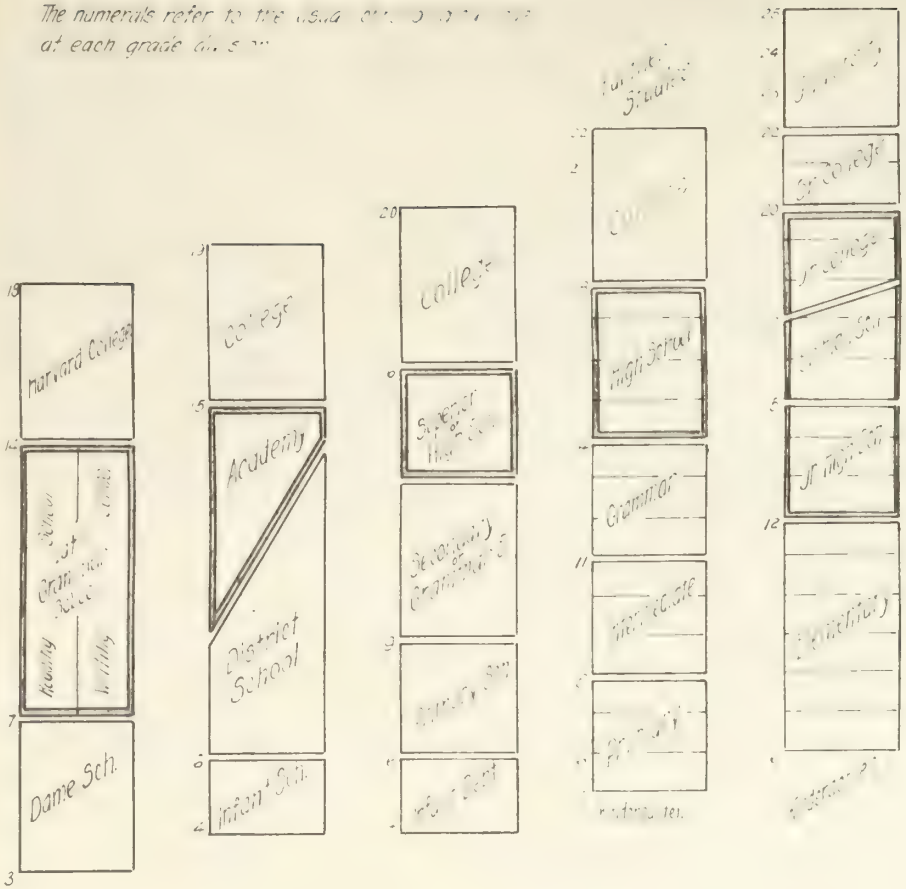
This, in a small way, may be considered as the beginning of the plan of grading. Barnard would carry it a bit further. In 1846 he wrote,

> "In small villages...two schoolhouses should be provided...for the use of the younger and of the older pupils. It is better to have two schools on the same floor, than one above the other. In large villages, a better classification can be adopted...and more completeness given to the construction of buildings appropriated to each grade of schools...Primary, with an infant department; Secondary or Grammar; Superior or High Schools. In manufacturing cities...infant schools should be established. The arrange-ment as to supervision, instruction and recitation, must have reference to the size of the school; the number of teachers and assistants; the general organization of the school, whether in one room for study, and separate classrooms for recitation, or the separate classes in distinct rooms under separate teachers, each teacher having specified studies; and the method of instruction pursued, whether mutual, simultaneous or mixed."

The chart which follows may serve to remind us how the idea of grading has developed before and since that time. It will be observed that the Barnard plan occupies the central column, that the length of schooling, the age of leaving the secondary school, and the age of entering the school, have all been increasing; that the district school to some extent overlapped the earlier years of the academy, and that the senior high school still overlaps one year of the junior college.

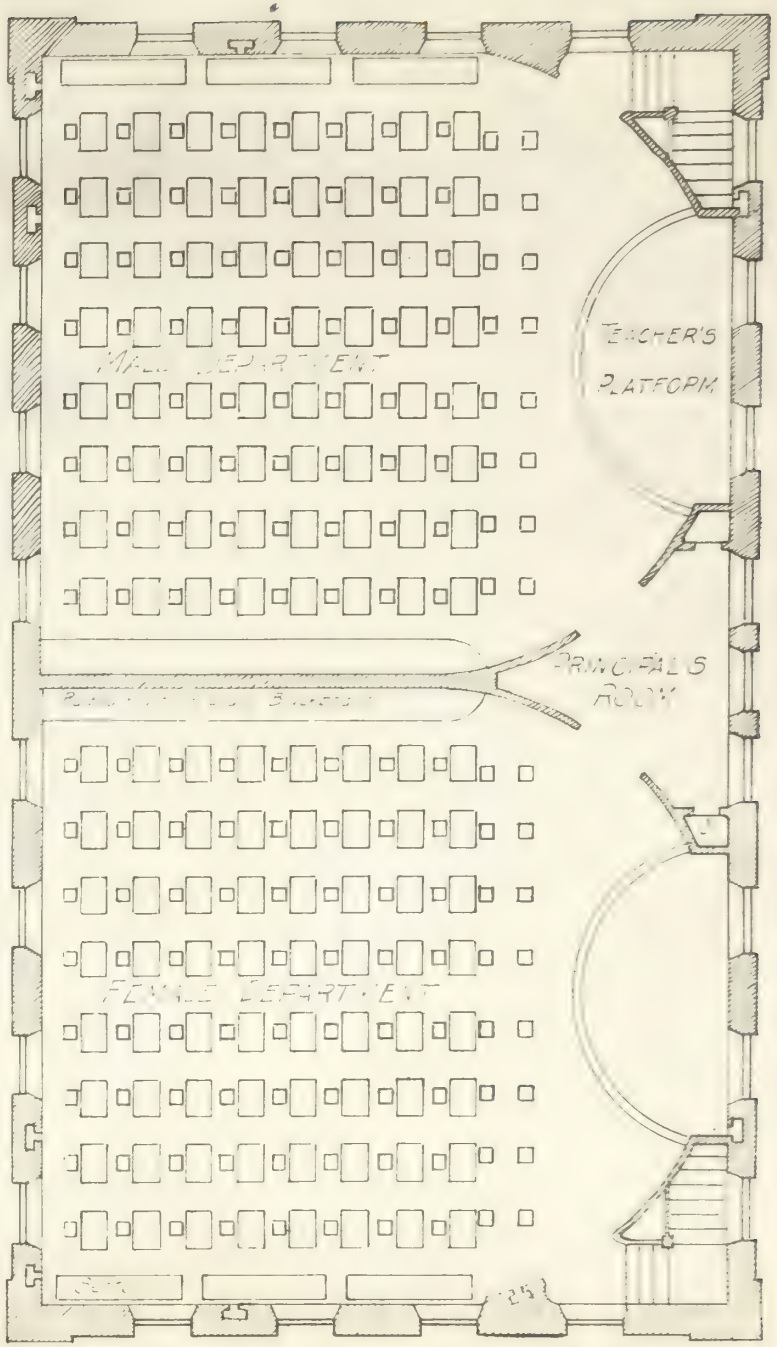
Few people realize what remarkable advances were brought about during the decade in which these two men, Mann and Barnard, were at the height of their influence. So accustomed are we to what are today regarded as essential features of the educational system, that it is hard to realize that there was a time when these were all new and untried ideas, and that many of them had their inception in the 1840's.

Barnard, in the 1846 book already quoted, says,



1635 1835 1865 1895 1935

Developement of Grading in Massachusetts.



PUTNAM FREE SCHOOL IN NEWBURYPORT
1848

"Since the year 1830, and especially since 1838 (the year in which Mann published his famous first report on the deplorable condition of Massachusetts schoolhouses), much ingenuity has been expended by practical teachers and architects in devising and perfecting plans of schoolhouses, with all the details of construction and fixtures, modified to suit the varied circumstances enumerated above"(referring to his remarks which are quoted on p.57).

And we can almost hear Horace Mann chuckle as he tells us in his 1846 Report, of the method whereby school districts in Massachusetts were induced to vote for new schoolhouses. The method was simply to see that district meetings were held in the schoolhouse,

"where the strongest argument to reform would be the house itself.
Cold winds, whistling through the crannies and chinks and broken windows, told with merciless effect upon the opponents. The ardor of opposition was cooled by snow-blasts rushing up through the floor. Pain-imparting seats made it impossible for the objectors to listen patiently even to the arguments of their own side; and it was obvious that the tears they shed were less attributable to any wrongs which they feared, than to the volumes of smoke which belched out with every gust of wind from broken funnels and chimneys.
Such was the case in some houses. In others, opposite evils prevailed; and the heat and stifling air and nauseating effluvia were such as a grown man has hardly been compelled to live in since the time of Jonah... Under such circumstances, persuasion became compulsory." (Reports of Horace Mann)

Having indulged in this characteristic witticism, a fair sample of the type of writing which make his reports so exceedingly readable, Mann proceeds to tell us in simple but convincing figures of the results of his efforts.

" During the five years immediately succeeeding the Report of 1838 on the subject of schoolhouses, the sums expended for the erection or repair of this class of buildings fell but little short of seven hundred thousand dollars. Since that time (three years), from the best information obtained, I suppose the sum expended on this one item to be about one hundred and fifty thousand dollars annually... It would not be too great to call this a revolution...and the annual reports of the school committees have enlightened and convinced a State."

While it is true that much attention was given to the improvement of schoolhouses during the time that Horace Mann remained the executive officer of the State Board of Education, that improvement was by no means universal throughout the state. So long as the pernicious district system persisted, it

was not to be expected that good schoolhouses would be other than occasional isolated instances. That system was abolished three times, in 1853, 1859, 1869, and each time was resurrected until in 1882 it was actually abolished to stay abolished.

A few instances of schoolhouses which served to show what might be done where the district system did not prevail, and which may have been potent in urging its abolition, will be descibed in the next chapter.

VI. FIFTY YEARS OF TRANSITION - DISTRICT CONTROL TO TOWN CONTROL - 1835 TO 1885

Although Horace Mann did not begin his work officially until his appointment as Secretary of the first Board of Education in 1837, it was as a result of his work in the Legislature that he was so chosen, and it was as a result of a general awakening interest in education in both Europe and America that the first State Board of Education was created. Hence it would be fair to say that the period of transition began even earlier than 1835. But it was in that year that it took tangible effect in Massachusetts.

And although the battle for the abolition of district control of the schools was finally won in the Law of 1882, the results in improved school buildings under full town control did not immediately show. So it seems fair to allow a little leeway on each side of the dates 1837-1882 and conveniently use the round numbers of half a century, 1835-1885.

During this period we find remarkable progress in school building, in spite of the fact that the progress was entirely voluntary and efforts at reform were isolated and independent of each other, and consequently more spasmodic than would have been the case had they been concerted and directed by some central authority.

The writings and lectures of Horace Mann and of his able successors in office, served to inform and inspire school authorities in cities, towns and districts, and by judicious praise and publicity provide an incentive for improvement and implied approbrium for neglect.

It would be quite possible to refer to the reports of the State Board of Education and to the school reports of the individual towns, to show year by year the new buildings erected and the alterations made in old buildings.

For example, we learn from the report of "the annual visiting committee of the public schools of the City of Boston for 1845" that there were then nineteen public grammar schools in Boston, five for boys only, five for girls only, eight for both, and one for colored children.

" In the main, the buildings were square, two story affairs, one room on each floor, each room holding 200 or more children. The largest membership given for any one school is 549 for the Hancock School. One school, the Franklin, is recorded as having five recitation rooms, but for the most part a school room was a single large room with a platform across one end and with seats for from 200 to 300 children. The seats were plain, solid, securely fastened to the floor, and arranged in orderly rows with narrow aisles between." (Caldwell. THEN AND NOW IN EDUCATION. 1925) (See diagram of the second floor of the Brimmer School)

The committee already referred to, say

" The Committee are satisfied that improvements should be made in several of the schoolhouses. All should have proper recitation rooms, and there would be much less interruption if the large school rooms were divided into two or three apartments by movable partitions. There should also be a much greater supply of blackboards...The City should provide all the necessary instruments for the teacher, so that on this head he shall have no excuse".

Some of the schoolhouses mentioned in this report are still in use in Boston. For example, the Sharp School on the corner of Pinckney and Anderson Streets on Beacon Hill, was erected in 1824 as a home for the English High School, and is now used as a primary school. It has two large rooms on each floor and is a fine example today of the architecture current at the time of its first building. Other Boston schools of even earlier dates which are still in use, are listed elsewhere in this thesis.

Also elsewhere in this paper, will be given the dates of erection of the high school buildings in most of the towns of the state, but here it may be sufficient to quote from the Report of the General Agent of the Massachusetts Board of Education in 1873, who investigated the conditions of schoolhouses in the Commonwealth for the 36th Annual Report. He says,

" In 1837, when the Board was established, the condition of the public schoolhouses throughout the state, taken as a whole, was disgraceful, and

for years had been growing worse and worse. Upon churches, courthouses and jails, houses and stables and other buildings, public and private, money had been freely expended to secure comfort, neatness, and even elegance. The schoolhouses alone were neglected, and 'suffered to go where age and the elements would carry them'. Not one third part of the public schoolhouses in Massachusetts would be considered tenantable by any decent family, out of the poorhouse or in it. That we still have (1873) as I shall presently show, in some parts of the state, buildings of this description, used for school purposes, should stimulate the friends of education to increased efforts to remedy so great an evil.

When Mr. Mann entered upon his duties as the first Secretary of your Board, the deplorable condition of the schoolhouses attracted his attention and his earliest and most earnest efforts were directed to their improvement. The 'Supplement' to his first annual report was devoted to this subject, and was instrumental in awakening an interest, which, strengthened by his own earnest and persistent efforts in this direction, and by those of his successors and their associates, has culminated in the present greatly improved condition of the school buildings in our own state, and in others that have been stimulated by our example.

It may be interesting to trace the development of this interest so far as it can be inferred from occasional statistical returns made to your Board, of the amount expended for erecting and repairing public schoolhouses in our State, and their estimated value, from the year 1838, when the value of all the 3,000 schoolhouses in the State was reckoned at about half a million dollars, to the present (1873) when their value is estimated at more than seventeen and a half million dollars."
(Report on CONDITION OF THE SCHOOLHOUSES IN THE COMMONWEALTH. 1873)

We have already quoted from Mr. Mann's Tenth Annual Report in 1847, as to his own estimate of the money spent to that year. In his twelfth report, in 1849, he states that the estimated value of the schoolhouses at that time was $2,750,000, and says that,

"at least $2,240,000 of this sum have been raised and expended since the report on schoolhouses and school architecture made by the Board to the Legislature in 1838".

Mr. Phipps goes on to report (CONDITION OF SCHOOLHOUSES. 1873) that,

"two school buildings have been quite recently erected which have cost as much as the entire valuation of the 3,000 schoolhouses in the State thirty-five years ago, viz., the Girls' High School in Boston, which has cost over $300,000, and the Worcester High School, about $200,000, and it has been proposed to erect a building for the Latin and English High School for Boys in Boston, which, including every expense, shall cost more than a million dollars".

Then Mr. Phipps shows by two tables, the amount expended throughout the State on school buildings in certain representative years, and in each county for the year preceding his report. He includes a cut and the four floor plans

of the new high school in Worcester, which he describes as a specimen of the very finest high school building erected in 1873, or up to 1873.

" The High School Building in the City of Worcester...was dedicated December 30, 1871. The building committee visited Norwich, Hartford, Springfield, Cambridge and Boston, to examine some excellent specimens of school architecture, and the plans for this building, designed by Messrs. Gambrill and Richardson of New York, were selected from quite a number that were presented. It is an elegant building - an educational force in itself of great value, and a monument to the enlightened and generous liberality of the second city of our Commonwealth. In architectural design, elegance of finish, and completeness of arrangement, it may well be an object of local pride and affection. 'Completely finished and equipped', its cost is stated to be 'not far from $200,000'" (And when we compare that with the $5, $15, or $50 paid for some of the district school houses of 1837, that is a much larger sum than it would appear in 1937)

In the cut of the exterior (a photograph appears under the name of Worcester High School of Commerce, on a later page)...the dark lines passing around the basement represent lines of black brick. The arches above the windows on the first floor, the ornamental work about the eaves, and around the dial on the tower, and near the slating of the tower and of the corner pinnacles, are of the same materials, interspersed with brick of the natural color. A water table of stone marks the line of the first floor; and a corresponding string course connects the windowsills of the second story; beneath the latter there is a line of red brick and black brick in alternate pairs, placed cornerwise, after a manner technically called herringbone. The same style of ornamentation is employed in the balustrades around the front entrance and the balcony at the base of the tower. Variety is also given to the slating upon the roof and the slats to the openings in the bell tower, by the introduction of red with the black slate. The dial is composed of white tiles, laid in mortar with the brick. All the stonework, except the above named belts, is flush with the surface of the brick walls, the ornamented work being undercut. From the roof an excellent view of the city can be obtained, and from the opening in the tower almost every building in the city can be seen.

There is an entrance to the basement beneath the portico in front, From this portico beneath the tower, with its massive square columns and its groined arches above, three heavy oak doors open into the main hall, which is continuous with the spacious passage, twenty feet in width, extending the entire length of the building. The ceiling at the intersection of these halls, and in the hall on the third floor, is panelled; and appropriate cornices adorn the halls and the rooms on the first and second floors. Each wardrobe is provided with rows of stalls with passage between by which the capacity of each room is multiplied. The brick partition walls which separate the several rooms are supported above the playroom by heavy girders resting upon brick piers and from iron columns in the center.

The physical apparatus room is provided with a large case and shelves, a broad table, drawers and cupboards. The lecture room contains a table fitted up in the most approved style for chemical and philosophical experiments and lectures. Seats elevated in the form of an amphitheatre will accommodate about one hundred and fifty students. The laboratory is

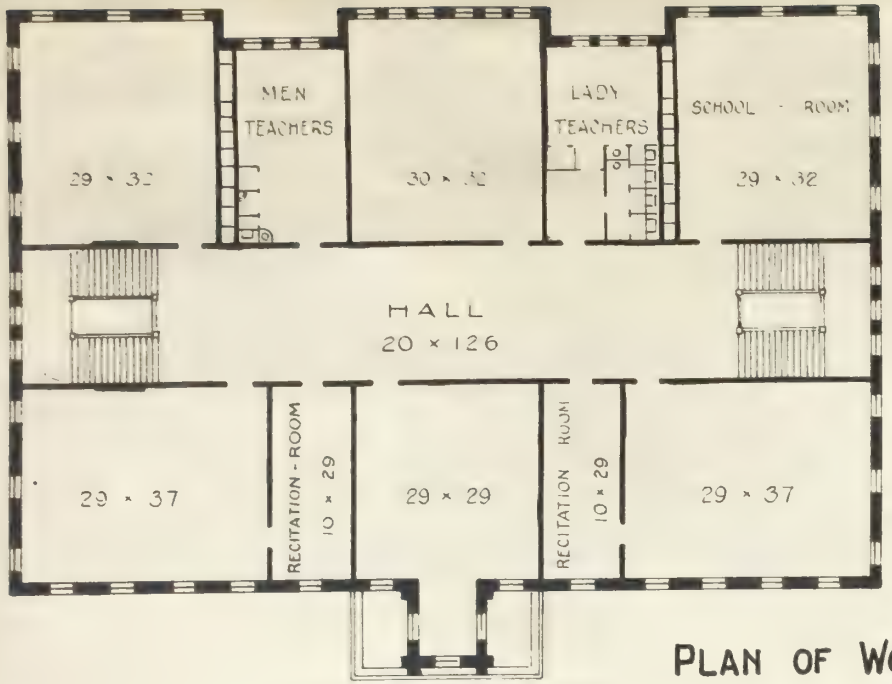
supplied with tables and all the appliances for individual experiment by the class. Thirty pupils can work at one time. Around the long tables in the library two dozen pupils can together consult books of reference.

The audience hall will seat seven hundred people, and by opening the broad sliding doors to the front anterooms there are seats for one thousand. These ante-rooms might be all used as class rooms. A stage in front and another in the rear provide for both music and oratory. Each schoolroom is furnished with the Normal desks and chairs manuafactured by Ross of Boston.

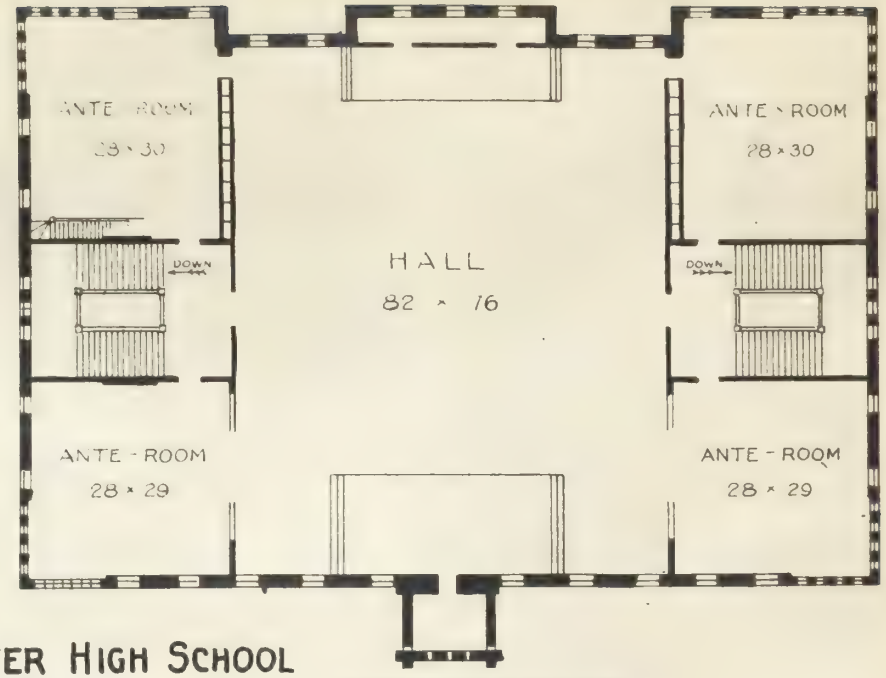
The building is heated by steam, by the two systems of direct and indirect radiation combined. It was at first intended to employ only the indirect radiation; but to guard against a chance that this as arranged might be insufficient, it was decided to place radiators in the schoolrooms and halls. The steam is generated in two tubular boilers, each four feet in diameter and thirty feet long, which are placed in a building a hundred feet or more distant from the schoolhouse and the steam is carried under ground in pipes wound with felt and otherwise protected. It has been found easy to warm the entire building to a desired temperature in the coldest weather with a pressure of five to eight pounds per square inch, and with an average consumption of about a ton of coal a day.

The arrangements for ventilation may be briefly described as follows: the lecture room has large registers in the ceiling, opening into foul air ducts running up to the belfry; and one schoolroom has ducts similarly arranged, except that the registers are placed in the floor. All the other rooms have registers placed in or near the floor, connected with large ventilators on the roof by a separate duct from each room. Each of these ducts has connected with it a smaller flue, starting in the basement, and terminating just above the opening in the duct for the admission of foul air, and in this small flue it is the design to create a draft by a burning gas jet. This part of the system has not been carrie out, and judging from the limited trial made thus far it is thought that efficient ventilating will be secured without requiring extra heat for creating a draft. In addition to the above described means of ventilation, there are flues in the outer walls opening beneath the projecting eaves and connecting with the several rooms by registers placed near the floor. These flues can be expected to be of practical value only in exceptional states of atmosphere.

The building is designed to accommodate five hundred pupils, and contains nine schoolrooms, each about thirty feet square, three of which are on the principal floor, and six in the second story. The first story also contains a large room for the library; and a lecture room; connected with each on one side is a chemical laboratory fitted up with all the appliances for the practical study of chemistry, and on the other side a room for philosophical apparatus. At the right of the main entrance is a room for the principal, which communicates with the several classrooms by bells and speaking tubes. In addition to the schoolrooms mentioned, the second story contains private rooms for the teachers and two recitation rooms. The third story is occupied by the large hall, seventy-six feet long by sixty-two feet wide, four connecting rooms at the corners of the building arranged to be used as a means of enlarging the hall, or for other purposes as exigencies may require. The wide halls extending lengthwise of the building, with commodious stairways at each end, form a main characteristic in the first and second stories. The entrances for the scholars are in the basement - that for girls at the north end and that for boys at the south end - and they communicate with rooms for wardrobe, etc. The middle part of



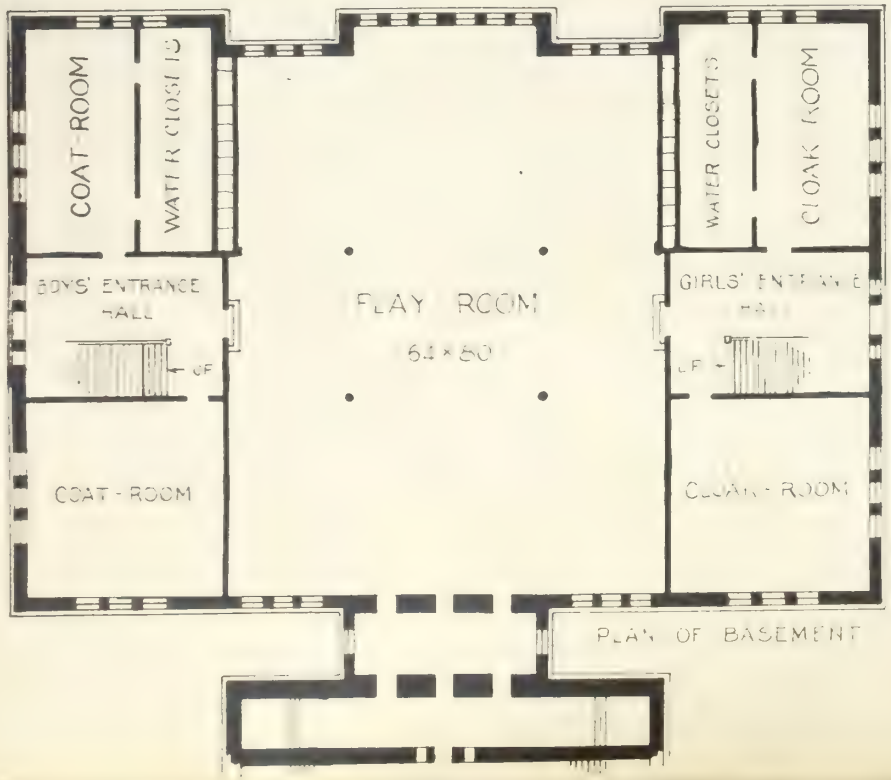
PLAN OF SECOND STORY



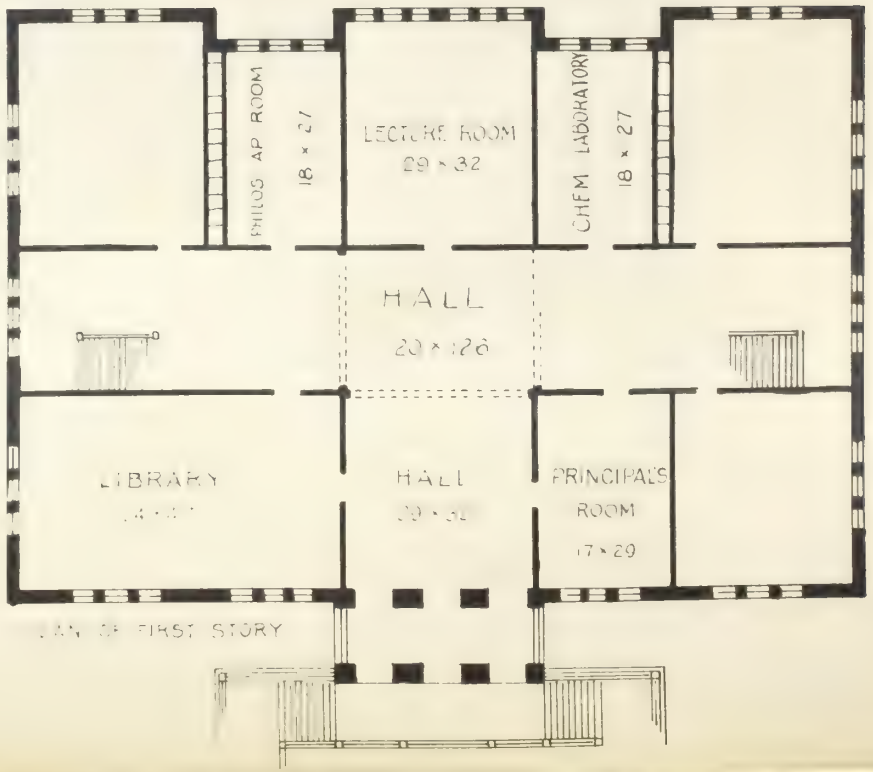
PLAN OF THIRD STORY

PLAN OF WORCESTER HIGH SCHOOL

1871



PLAN OF BASEMENT



PLAN OF FIRST STORY

PLATE VI

the basement is devoted to a gymnasium. The building is finished with varnished pine throughout.

The exterior walls are of pressed brick with Nova Scotia stone trim, and black bricks are introduced to a considerable extent as a feature of decoration. A handsome double stairway of granite, brick and freestone, leads to the main entrance, and above this rises a slender, lofty tower of exquisite grace, arranged for clock, bell and observatory. It has a very fine toned bell and a large clock which strikes the hours, and there are twelve smaller ones in as many different rooms. These small clocks are operated by a battery connected with the large clock, thus securing uniform time throughout the building. All the rooms can be lighted with gas when neccessary, gas fixtures having been provided for all." (67)

We have quoted this description quite at length, not that the building may be compared favorably with those more recent buildings with which the people of today are familiar, but that it may be compared with those described by Martin, Mann and Barnard on previous pages. By such a comparison it is possible to see the marvellous improvement which had been accomplished in a single generation, in contrast with the lack of improvement in the previous two centuries.

The heating (?) by fireplaces and stoves, which roasted those near them and left the others to freeze, sometimes very literally, has been replaced by steam heat, the best type of heating then known. The careful saving of fuel recommended by Woodbridge, depending upon"the breath and perspiration of a school", has been replaced by the attitude that consuming a ton of coal a day is a remarkably low price for adequate heating.

The ventilation by means of "one window lowered at the top", is replaced by an elaborate system of flues and registers. The fear that windows at all in the side walls may tempt scholars to look out seems to have disappeared entirely, for windows are plentiful and large. Moreover a little boasting is indulged in to the effect that the building affords a lookout from which every building in the city can be seen.

The shabby, unpainted exterior of the old box schoolhouse of the pre-Mann

times, has been replaced with arches, ornamental stone and brick work, towers and spires, porticoes and approaches. Whittier likened the Haverhill school house which he attended, to "a ragged beggar, sunning". Truly, the beggar has been adopted by society, clothed in the raiment of respectability, and even put in a place of leadership as a model to others.

The "five dollar clock" which Mr. Woodbridge did not find in school houses but which he recommends, has been replaced with a tower clock costing many, many times five dollars, and a whole system of electrically controlled time-pieces connected with it.

We might continue to contrast this new schoolhouse of 1871 with the places of trial and torture of 1835, and our wonder would continue to grow that such a change could come about in only thirty-five years. We should find that it had not been as sudden of accomplishment as would seem from the isolated example used as illustration. Many intermediate steps and try-outs were needed, and can be noted in the buildings erected in the years which intervened. Yet we may give a large percentage of the credit for this wonderful improvement to those three men; Woodbridge, Mann, and Barnard.

Nor must it be assumed that all schoolhouses erected in 1871 were as well planned as that in Worcester. Springfield, Cambridge and Boston were almost the only other cities in Massachusetts with anything approaching it. Most of the secondary schools of the State were housed in buildings used only in part as high schools. An example of the usual arrangement is the school at Groton, illustrated on the plate with Woodbridge's plan, where the first floor contains the grammar or elementary grades, the second floor contains the high school, and the third floor is used for a hall common to both.

Let us again quote the words of Abner J. Phipps, official investigator for the State Board of Education, as he reported the conditions of the school

houses of the State in March 1873.

" I would by no means wish to create the impression that all the school houses of Massachusetts are what they should be, and that nothing further remains to be done for their improvement. Inprevious reports I have spoken of the wretched school buildings which I have found in many parts of the State, sparcely populated and remote from the centers of wealth, and although they are from year to year giving place to new and greatly improved ones, very many still remain. Need I say that these are mostly to be found in those towns that still cling to the "district system", and that as long as that continues to exist, little or no improvements in school accommodations can be expected of them. When the law was passed in 1869, abolishing the district system, and thus transferring the ownership and control of the school buildings to the various towns, in very many places the improvement in the old school buildings was entered upon at once. Old buildings were sold, or thoroughly repaired and remodelled; new ones were erected, and furnished with modern furniture and many other needed appliances. In some towns, having numerous district schools, containing frequently less than a dozen children, and continued for unequal periods, of in some cases less than the minimum time required by law, a few large buildings were erected in such localities as would accommodate large numbers of children, who being distributed in the different rooms according to their proficiency in study, could be taught much more efficiently in these graded schools, and enjoy equal privileges in point of time.

I might cite numerous instances in confirmation of this statement. Let one or two suffice. In 1868-9, the Committee in one of the towns, speaking of the schoolhouses, say, 'Most of them are old, out of repair and badly constructed, and in some instances, about the only remains of a once flourishing neighborhood. They have stood up and battled with time and progress about as long as they can, and what vitality they now have seems to be taking a new direction, and instead of trying to stand, they are trying to tumble down, and would doubtless feel grateful to the first high wind for relief'. Immediately upon the abolishment of the district system they 'set about to establish a new condition of things, choosing a committee to examine locations for schoolhouses, make estimates and furnish plans etc.' The next year a large school building was erected in the center of the town for the accommodation of five graded schools, with six well furnished convenient rooms besides a hall in the upper story and a basement for heating apparatus' &c. 'Other similar improvements and changes were made.'

The Committee of another town, in a report just before the district system was abolished, in speaking of one district schoolhouse, say that, 'twenty-five children sat upon the floor for lack of benches, because the people did not care enough to provide them'; and that there were 'four other districts where schoolhouses were uninhabitable from dilapidation'. Two years after the Legislature abolished the system, the Committee say, 'The liberal sums voted by the town, the past and present year, for building and repairing schoolhouses, is another evidence of a growing interest on the part of the people. These and other indications show that in the abolishment of the 'district system' the schools have by no means gone out of the hands of the people, and that the school committee are not only under obligation to perform certain duties to the Commonwealth, but are

also under much greater obligations to the inhabitants of the town than heretofore.'

From the report of a committee of another town, in April 1869, just after the abolishment of the district system, it appears that many of their schoolhouses were in a most deplorable condition. Of one, valued at $50, it is said that ' the doors and windows are so aged and loose as to admit the air so freely that it is almost impossible to warm it,' and 'we value the building merely because, being of wood, it may be useful for fuel if taken down. It is really cruel to keep teachers and children in it.' Another was valued at $100, others from $300 to $2000 The valuation of one schoolhouse then in use, is said to be 'absolutely nothing', 'as no one could afford to take it away for the materials of which it is composed.' 'The walls are seamed with cracks, and great fissures yawn at the passerby.' 'The doors are hacked and hewed.' 'The desks are old fashioned, inconvenient, and badly whittled.' 'The benches have no backs.' 'There are no means provided for ventilation, except where the six by eight panes of glass have been broken from the sashes.' ' In this single room the scholars of all ages and attainments' (there were 76 registered with an average attendance of 51),'are indiscriminately crowded together, and must be educated to habits of carelessness, unthrift and untidiness. If this were an Illinois prairie instead of a Massachusetts town, we should have a spacious and costly building of brick and stone with departments of various grades and teachers adapted to each one. Shall we not have such a building here?' And the town, after the district system was abolished, said they should, and with wise liberality at once proceeded to erect 'a neat schoolhouse to take the place of the crazy old brick affair' which had been so graphically described by the school committee. Other new schoolhouses were erected in several parts of the town and in their report, March 1871, the committee say,'the school houses under our special care are generally in good condition'.

Of another town having a population of less than 500, and a valuation of a little more than $200,000, the committee say that the town voted in 1870 'to build three new schoolhouses, and to make extensive repairs on another, and all to be done within that year'. These buildings, though not elegant or expensive, are neat, commodious and comfortable. The other schoolhouses having been built but a short time, are all, six in number, substantially new. The schoolrooms are furnished with modern seats and desks, but there is a deficiency in school apparatus, outline maps, charts, &c.' Few, if any, towns in the State, have done as much in proportion to their numbers and ability to improve their schoolhouses, as Peru has (a small town near Pittsfield, with an even smaller population today than in 1873) and in view of benefits already realized, and others confidently anticipated, no wonder the committee say,' We congratulate our citizens upon their refusal to return to the old district system. To have done so would have been an advance backwards, and the present is not the age for retrograde movements in any matter pertaining to our educational interests.'

One of the most serious evils resulting from the Act of the Legislature of 1871, permitting such towns as desired to do so, to return to the district system, is seen in the large number of poor buildings, similar to those above described, still used for school purposes, in many of the towns that have so unwisely re-adopted the system, and thus arrested the improvement of their school buildings, which the town is so much more able to affect than the district. Here is a case in point, and it is one of many that could be given. In 1867-8, the school committee of a certain town,

speak of 'the dilapidated state of some of the schoolhouses'. They say,'they may at some remote period have been an ornament to the hills and hollows they now disfigure, but that WAS a remote period, and they have outlived their beauty and their usefulness. There may be pleasant associations still lingering in the minds of some of the aged, which render them almost sacred but the propriety of sacrificing the interests of the present generation to the sentiment of the past is doubtful. In some of the schoolhouses it is almost impossible for a pupil to keep comfortable in cold weather, except by an effort that leaves no thought or time for study; and their condition is such as to make him feel that he has, for some unaccountable reason, been confined in them as a punishment.'

In 1870, the schoolhouses are again spoken of as 'a dishonor to the town', and the opinion was expressed that 'the much needed improvement of the schoolhouses would be one of the many advantages to be derived from the doing away with the district system.' But alas, after expending $25 in 1869 and $80 in 1870, for repairing their ten houses, very soon after the Legislature passed the act above alluded to, the town voted to return to the district system and thus 'the much needed improvement of the schoolhouses was indefinitely postponed.

Without prolonging this part of my report, I cannot refrain, in closing it, from expressing the earnest conviction that if it had not been for the unfortunate Act, this 'advance backward' in our educational interests by the Legislature of 1871, I should not be compelled to speak of so many relics of the past which exist as a 'dishonor to the towns' in which they are found, but could with great pleasure, and pride even, report to you that through the length and breadth of our good old Commonwealth 'the condition of its schoolhouses' has everywhere been greatly improved and is entirely satisfactory." (Phipps. REPORT ON SCHOOLHOUSES IN MASS. 1873) (67)

It is quite evident that, in the opinion of the principal authority on the subject in his day, the slow progress in schoolhouse betterment was due largely to the district system, and could not be expected to show marked improvement until that system should be abolished for the final time. That happened in 1882.

It may have been observed that an unusually large number of school buildings in Massachusetts bear the date 1871 or thereabouts, on their corner stones. That mystery seems now cleared up. It was the period following what seemed to be the final abolishment of the system.

From this report of Mr. Phipps, we learn that in 1873 there were sixteen cities in the State, maintaining eighteen high schools, and that the 342 towns of the State maintained 159 high schools, 39 of them doing it although the law did not require it of them. There are today (1937) just 255 high schools in

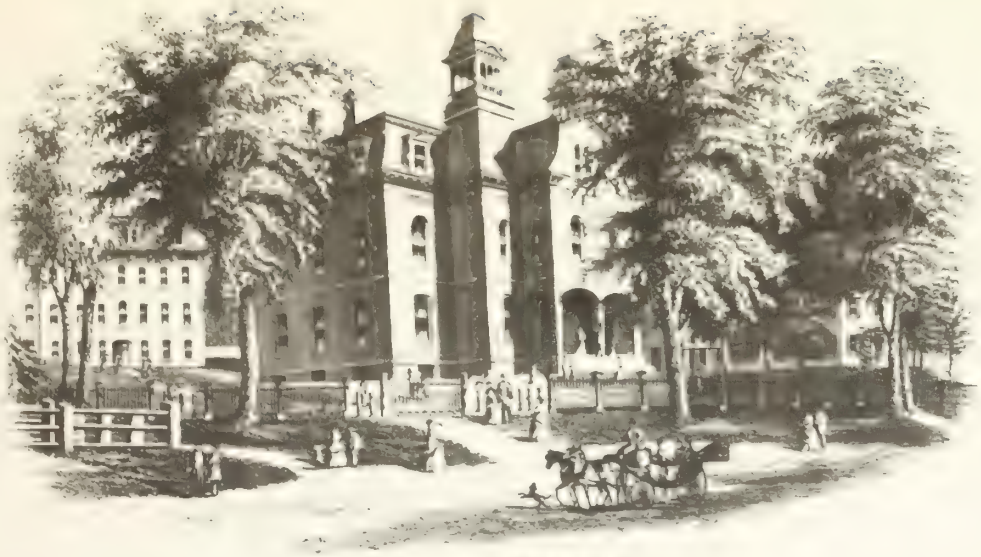
the State, and the number of cities has increased to 39.

A second part of Mr. Phipp's report contains the plans of several school houses, both actually erected and ideals. Among them are the Girls High School erected in Boston in 1870 (See Plate XII) at a cost of $234,563.35; the High School in Worcester already described, and the High School in Fitchburg completed in 1871.

Like that at Groton, the Fitchburg High School occupied the second floor of a combination building, the first floor containing a high school room and two small recitation rooms, and the third floor given over to a hall, with rooms for library and school committee.

It is interesting and somewhat amusing to see the timidity with which provisions for co-education in the schools of this period were made. In the earlier days there were none at all, for only boys were considered, in the secondary schools. Then, with the opening of the district school and academy, girls were admitted by a separate entry and usually the center line of the building kept the sexes entirely separate, the master and the stove being the only things held in common by the girls and the boys. When school houses began to be built with two rooms, the boys had one and the girls the other. (See the plans of the Groton High School and of the Putnam Free school in Newburyport. Plate II and Plate V)

It is also interesting to note the effect upon the academies of the growth of the high school during this period (1835-1885). At first the district system, with its poor provision, both materially and educationally, for the free education of youth, was a very good thing for the academies. It caused those citizens who could afford to pay tuition, to send their children to a private academy, rather than to permit them to suffer the considerable



LAWRENCE ACADEMY
GROTON MASS

Old School House of 1768 and Later House

THE PENN HALL

PLATE VII

discomfort and handicap of attendance at the district school. This in turn, reacted to deprive the district school of the support and attention of the citizens best able to support it and added to the neglect which became its inevitable fate.

The academies not only took pride in building better buildings than the districts could build, but they had the means to do it. But with the gradual growth of the public high school, most of the academies declined in patronage and either closed their doors entirely or were taken over by the towns and run as public high schools. The few older and stronger academies which were able to survive, became exclusive fitting schools for college, drawing their patronage from outside New England as well as from the wealthier families of this State.

Two of the oldest, the Governor Dummer Adademy and the Phillips Academy in Andover, are still flourishing, and as they take great pride in their antiquity, the older buildings are carefully preserved. In Byfield there is still to be seen the small, one-room building of 1763, and the more commodious one first occupied in 1820. Each of these buildings were much more palatial than the public school buildings of their day, as was generally the case with all academy buildings.

Phillips Academy has grown gradually from very small beginnings. Its first season opened with brief ceremonies on April 30th, 1778, in a one storied carpenter shop, only twenty feet by thirty-five in floor space, made of rough unpainted boards. (ANDOVER PRIMER. Andover 1928) (40)

This building is no longer there, but the brick academy building erected in 1818 is still to be seen on the campus, and until 1930 had been in use for many years as a dining hall. It is an impressive building, designed by Charles

Bulfinch, the architect of the State House in Boston and of the Capitol at Washington, to take the place of the second building which had been erected in 1786 and burned in 1818.

The fourth building, known as the Stone Academy, was a severe and unornamented granite structure, put up in 1829 but destroyed by fire in 1864. To replace it, a fifth main building, of brick, was completed and dedicated in 1866, after which it was twice remodelled. Having been condemned as unsafe for use, it was torn down in the spring of 1927.

In June 1924, the Trustees dedicated a new main building, designed by Architect Guy Lowell of Boston, and named Samuel Phillips Hall in honor of the founder. It cost over half a million dollars. Since then an elaborate building program has brought this oldest of our academies to a stage where its campus is as impressive, both for beauty and "elegance" of its architecture and the dignity and style of its buildings, as any college campus in our old state, famous for its educational traditions.

It was to the brick academy building at Phillips Andover, designed by Bulfinch, that Oliver Wendell Holmes refers in the "Schoolboy", (15)

"How it all comes back. The upward slanting floor, -
The masters' thrones that flanked the central door, -
The long, outstretching alleys that divide
The rows of desks that stand on either side, -
The staring boys, a face to every desk,
Bright, dull, pale, blooming, common, picturesque.
Grave is the Master's look; his forehead wears
Thick rows of wrinkles, prints of worrying cares -

Supreme he sits; before the awful frown
That bends his brows the boldest eye goes down;
Not more submissive Israel heard and saw
At Sinai's foot, the Giver of the Law."

The "Master" referred to, was Dr.John Adams, who became the teacher of the Academy in 1810 and retained possession until 1833, in which time some

two thousand [illegible] (Adams. SOME FAMOUS AMERICAN SCHOOLS, 1903) The poem was written for the centennial anniversary of the [illegible] in 1871.

There are two other private schools in Massachusetts that are described quite at length in this same book by Mr. Adams. They are both under the auspices of the Episcopal Church; Saint Marks School at Southborough, and the Groton School at Groton.

Saint Mark's was founded by Joseph Burnett in 1865, and is limited to one hundred and twenty-five boys. Unlike some other schools of like nature, its group of buildings is really but one building, with a separate chapel and gymnasium. It looks very much like a rather elaborate hotel, except for the chapel. It is very English, in customs, nomenclature and even architecture.

The Groton School, having been founded in 1884, just comes within the scope of this chapter. Unlike the school just mentioned, it consists of a number of impressive buildings surrounding a beautiful campus, and dominated by a chapel which some have called the finest school chapel in America, a copy of an English cathedral of the Late Decorated Gothic period.

> " To the south is the long range of the Hundred House, so called because the abode of one hundred boys, and opposite it, on the north side of the lawn, is the older Brooks House, named in honor of Bishop Phillips Brooks. The feature of the west side is the School House, while on the east are the great gymnasium and the noble school chapel."
> (Some Famous American Schools. Adams) (1)

There is no mistaking this school for a hotel or for anything else than what it is, one of the most exclusive private schools in America, where presidents and statesmen send their sons to be educated.

The private schools of today, with the notable exception of such schools as Wilbraham and the Moody Schools, are the very antithesis of the academy of late eighteenth and early nineteenth centuries.

The forty-nine reports of the State Board of Education up to the year 1885, contain numerous references to the condition of school houses through the state, which exhibit the fact that progress in new building was being made, but hampered everywhere that the old system remained entrenched.

An examination of the reports of the school committees of the towns during this same period, provides most interesting reading, but to quote more of them would be merely to repeat what has been said by Mr. Woodbridge, Mr. Mann, Mr. Barnard, and Mr. Phipps. Over and over again we find the local reports decrying the condition of school buildings where districts were responsible, or announcing with gratification the improvement in new or rebuilt school houses where the town had assumed the authority.

In the 17th Report, by Barnabas Sears, Secretary of the Board of Education in 1853, a supplement offers fifteen plans which have been prepared as suggestions for school houses for rural towns and villages. Most of them are merely variations of the plan offered by Horace Mann. Some include buildings with two rooms, one for the boys and the other for the girls, and some provide for two story buildings.

In the 48th Report, by Secretary J. W. Dickinson, there is a supplement on School Architecture, by D. F. Lincoln, M.D., which, although it does not refer especially to secondary school buildings, is worth quoting in part to show the contrast with the recommendations of Messrs Woodbridge, Mann and Barnard, and the progress since their time.

> " The ideal schoolhouse has not yet been seen. Many are very good, very pleasant - good enough, perhaps - and the progress made within twenty years is gratifying...One of the best signs of modern progress is the abandonment of lofty buildings. Two stories is the height which very rarely should be exceeded. A third story may be used for occasional reunions, special laboratories, drawing rooms, drill room, gymnasium - in short, for such purposes as do not require frequent visits; but for the very large majority of schools, even this will be unnecessary.

There are many variations in the floorplan, but few leading types. One of the commonest is the four-square, with a room at each corner, and a single corridor running through from front to rear; usually having a flight of stairs in front and a similar flight in the rear, and the open hall space between them. The house doors open under the stairs. There is a space for one long cloak room by each school room. The merits of this plan are several. It is compact and easily heated. The stairs make turns at landings halway between stories. There need be no deficiency of light in the rooms; certainly not on the stairs. Supervision is easy. There is opportunity for good natural ventilation of the corridor, and (in warm weather) for that of the rooms.

On the other hand, each room has windows on two adjoining sides; an arrangement adapted to supply a considerable quantity of light, but not well devised as regards its distribution, since it obliges us to seat the teacher directly opposite the windows of one side. In the rooms of high grade, where the teacher sits for long periods at the desk, this is often irksome, and I have heard injury to sight ascribed to this cause. In primary rooms, on the other hand, teachers often move about, and may not feel any inconvenience from the circumstance.

This plan, and similar ones, are characterized by having rooms on bothsides of the corridor. A better arrangement is that which places rooms on one side only. This has been carried out in the Latin and High School and in the Newberry Street School in Boston; the former is an expensive building, but the latter is by no means such. A corridor exposed on one side to the light, and furnished with numerous windows, contains a supply of air which may be used to freshen the air of the schoolrooms when they become close. Some teachers prefer to have their doors always open to the corridor.

A frequent fault in corridors is a want of light. This is often the case in schools of the first type - the stairs darken the corridors. It is not really necessary that this should occur.

A form of building in which the corridor is surrounded by rooms in close order on three or four sides is not to be advised. The general circulation of air is not likely to be good.

In the general plan for one floor of a building, we require for each schoolroom, one cloakroom; in a mixed building, two cloakrooms are desirable, though things could be so arranged that two rooms could use two cloakrooms in common, alloting one to each sex. Some excellent schools exist in which this convenience is very defective in point of size, while in others it is so placed as to have no ventilation or direct light. Where there is a system of flue ventilation, the cloakrooms ought to share in it; where this is not the case, care should be taken that the room is aired by the window. The cloakroom is entered from the corridor and has a second door to the schoolroom so placed as to be under the teacher's eye; near the desk if possible.

The best shape for a schoolroom is that of a parallelogram whose length is to its breadth about as 4 to 3 The teacher sits at one end and the greater part of the light enters by one side. A platform is not an absolute neccessity; some teachers find it pleasanter to do without it, as stepping up and down frequently is awkward.

The size depends on the number of pupils. One teacher has charge of from twenty-five to sixty scholars in one room. A minimum allowance of space give 200 cubic feet to each scholar, making from 5,000 to 12,000

cu. feet This corresponds to the following dimensions: for the smaller rm 18 x 22 1/4 and 12 1/2 feet high; or for the larger room, 25 by 34 and 14 feet high. The difference is a very great one. (It is understood that Dr. Lincoln is not distinguishing between elementary and secondary school buildings) The smaller room is certainly the more desirable of the two for it is much easier to light it, and easier to reach with the voice and the eye. It is thought in Boston that fifty-six pupils is a good standard number (seven rows of desks, with eight in a row), but the adjoining city of Newton considers forty sufficient. In the city of Springfield the number of pupils averages about forty to a room. Forty pupils, with 200 cubic feet of space to each, can be accommodated in a room 22 by 28 and 13 feet high, which is on the whole, what I would recommend as about the right size for the average room.

There is a plan, often used in high schools, in which one large room is assigned for the use of several classes in common for study, while smaller ones serve for recitation. There is a real objection to such large rooms. They are not easy to light and the master's time is much taken up with the matter of discipline in remote quarters. In schools built on this plan, we often find the recitation rooms altogether too small; such rooms are in constant use, and are apt to be the worst ventilated part of the house." (Supplement of 48th Annual Report, State Board of Education, 1886) (70)

At this point Dr. Lincoln writes quite at length on the subject of windows and ventilation. He believes that windows in all except primary rooms, should be on one side of the room only, which should be on the left side of the pupils. He commends the school built by the Ludlow Manufacturing Company, where the windows are on opposite sides, large ones on the north and high small ones on the south, with shutters to protect scholars from the rays of direct sun light during working hours.

In his suggestions concerning ventilation he recommends that an open fire place be an adjunct of each school room. It provides a pleasant heat when the temperature outdoors is from 50° to 60°, and furnaces are apt to be too hot, and it acts as a ventilator all winter.

His paragraph on water-closets reveals that these innovations are still a subject of controversy. Whether they should be situated in the basement or in an outbuilding is still a matter of debate. He rather opposes the basement idea, although he says that it seems to work well in the Prince School in Boston, which is patronized by the better class of children, and in the very

high basement of the newer schools of Worcester. At any rate he urges that they should be well ventilated, not too cold nor too dark, and be kept clean.

One of his general remarks near the close of his report will be appreciated by all who are familiar with the general style of architecture which prevailed in Massachusetts during the seventies,

> "A schoolhouse can easily be raised to an artistic level above that of our average 'fine blocks of stores' by omitting most of the gingerbread work".

With this he shows an example of well planned and simply designed buildings, one built in Auburn, N.Y. in 1885, and a similar arrangement of rooms in the Oak Street School in Springfield.

During all the period covered by this chapter, 1835 to 1885, we find a strange contradiction in school buildings throughout the state. Existing in some places are the neglected atrocities of the district school type, and in others at the very same time are buildings which show careful planning and thoughtfulness. We are amazed at the progress which has been made in some places, but we cannot expect it to be so general until the pernicious district system was entirely wiped out, as it was at the end of this period.

One does not have to depend entirely upon pictures and plans for a study of the types of schoolhouses in use during the nineteenth century. In the city of Boston, for example, one can see the buildings themselves still standing and in daily use, that have been erected in each decade of the century.

The report of the Boston Schoolhouse Commission for the year 1913, shows that there are more than fifty schoolhouses in Boston built before 1860 that were then in use. And the reports of the School Department for 1900, 1901, 1902 and 1903, contain photographs of nearly all the buildings then in the system.

Following is a list of these older schoolhouses in Boston:

Date erected			
1800	Samuel Dexter School,	8 rms,	Harvard St.,Chlstn. Remodelled 1872
1804	Butler School	1 rm	East River St.,H.P. Now storehouse
1823	Hawes Hall School	8 rms	Broadway,S.B. Remodelled 1859
1824	Sharp School	9 rms	Anderson St., Beacon Hill

(This building was the first home of the English High School, until 1844, and was subsequently occupied by the Phillips Grammar School. It was named in honor of the Rev.Daniel Sharp,DD. a member of the school board and a well known Baptist clergyman, paster for many years of the Charles St. Church at the foot of Mt. Vernon Street)

1838	Eliot School	14 rms	Center St.,Dor.
1840	Simonds School	3 rms	Broadway,S.B.
1842	Parkman School	12 rms	Broadway, S.B.
1843	Indstl Sch for Boys		Common St.
1845	Louisa May Alcott Sch	11 rms	W Concord near Newland St.
1845	Thomas Starr King Sch	8 rms	Bunker Hill St.,Chlstn
1846	Louis Prang School	6 rms	Bartlett St.,Rox.
1847	Charles E. Daniels Sch	4 rms	Mead St.,Chlstn
1847	Hancock School	14 rms	Parmenter St.
1847	Mt Pleasant Ave Sch	2 rms	Mt.Pleasant Ave.,Rox.
1847	Nahum Chapin School	6 rms	Common St.,Chlstn
1847	Quincy School	14 rms	Tyler St.
1847	Thornton St. School	2 rms	Thornton St.,Rox.
1848	Harvard School	4 rms	No.Harvard St.,Bri.
1848	Old Parkman School		Silver St.,S.B. Now a storehouse.
1849	Austin School	6 rms	Paris St.,S.B.
1849	Old Aggasiz School	6 rms	Burroughs St.,J.P.
1849	Smith St. School	2 rms	Smith St., Rox.
1850	Pierpont School	4 rms	Hudson St.
1850	Way Street School	3 rms	Way St.,near Harrison Ave.
1851	Francis E.Willard Sch	6 rms	Rutland St.
1851	Old Ira Allen School		Leon St.,Rox. Now a storehouse.
1852	Dorchester Ave School	4 rms	Dorchester Ave.,Dor.
1852	Grant School	4 rms	Phillips St.
1852	Old Dearborn School	14 rms	Dorchester Ave.,Dor.

(The writer taught for seven years in this building)

1853	Old Baker School	1 rm	Baker St. W.Rox.
1855	Old Edward Everett Sch	6 rms	Summer St.Dor.
1855	Pormort School	6 rms	Snelling Place
1855	Tyler Street School	6 rms	Tyler St.
1856	Auburn School	4 rms	School St.,Bri.
1856	Comins School	13 rms	Tremont St., Rox.
1856	Commodore Barry Sch	13 rms	Belmont Sq.,E.B.
1856	Lawrence School	13 rms	B St.,S.B.
1856	Stoughton School	8 rms	River Street,Dor.
1856	Walnut Street School	7 rms	Walnut St.,Nep.
1857	Dwight School	14 rms	W Springfield St.
1857	Heath Street School	2 rms	Heath St.,Rox.
1857	Old Gibson School	7 rms	Athelwold St.,Dor.
1858	Hillside School	6 rms	Elm St.,J.P.
1859	Cottage Place School	4 rms	Cottage Pl.,Rox.
1859	Franklin School	14 rms	Waltham St.
1859	Fred W. Lincoln Sch	13 rms	Broadway, S.B.

The list might easily be continued but it is long enough to show that examples are plentiful of the architecture of school buildings, both planned and unplanned, in the city where the best buildings possible at each of these times may reasonably be expected to be afforded. Following is a list of the high school buildings in Boston;

1867	West Roxbury High School
1870	Girls' High School
1880	Public Latin School
1880	English High School
1891	Roxbury High School
1893	Mechanic Arts High School
1896	Brighton High School
1901	East Boston High School
1901	Dorchester High School for Boys
1901	Dorchester High School for Girls
1902	Hyde Park High School
1907	Charlestown High School
1907	Girls' Latin School
1907	Teachers College
1910	Trade School for Girls
1913	High School of Practical Arts
1912	Boston Trade School
1914	High School of Commerce
1926	Memorial High School for Girls
1929	Memorial High School for Boys
1934	Jeremiah E. Burke High School
1901	South Boston High School
1936	Roslindale High School
1898	Jamaica Plain High School

Elsewhere in this paper, four of these buildings and four of the seventy-three intermediate school buildings, will be studied with a view to their degree of conformity to the best standards of schoolhouse planning.

VII. THE PERIOD OF COMPETITION BETWEEN ARCHITECTS. 1885-1910.

With the principal obstacle to the building of proper and adequate school houses removed in the return to town control, the next quarter century resolved itself into a competition between architects as to which could design the best building.

The epoch-making building of the period just studied was the Siamese-twin structure of the English High and Latin School in Boston. It was such a radical departure from the secondary school houses erected elsewhere in that period, that it rightly belongs at the beginning of the new chapter instead of at the end of the previous one. (Wheelwright. SCHOOL ARCHITECTURE)

The early grammar schools and the later academies had been conducted on the English system - that is, the pupils of several classes were congregated in large schoolrooms, where the major part of the pupils studied while small sections passed to other rooms for recitation in special subjects. When the high schools were established, they followed the system of the academies, which in many cases they superseded. The system of large study rooms with smaller recitation rooms surrounding them, is well illustrated in the plan of the girls' High School in Boston, erected in 1870.

The English High and Latin School of Boston, begun in 1877 and first occupied in 1882, was the first example in this country of a scientifically expressed school. The report on this building by John D. Philbrick, at that time Superintendent of Schools in Boston, shows that the features of this building were in the main suggested by the Academische Gymnasium in Vienna. Dr. Philbrick's report goes on to say that,

> "the city of Vienna has individual school buildings vastly better than the best in Boston, but if you take all the school buildings in Vienna, the good and bad together, the average accommodations offered to all the

children of the city are perhaps not equal to the average of the accommoda-tions provided for the children of Boston. Vienna knows how to build and has built school edifices that are more endurable, more safe, more convenient, more costly, more beautiful than any Boston has yet built, or is likely to build in the near future. The reason for this is, that in Vienna when a schoolhouse is planned, it is done by the combined science and wisdom of the most accomplished architects and the most accomplished pedagogists. No mere whim of a schoolmaster and no mere whim of an inexperienced and uneducated architect is allowed to control the design.

In its general arrangements the block plan of the English High and Latin School consists of a parallelogram 423 ft. long by 220 ft. wide, the longest sides, or main buildings, fronting on Warren Avenue and Montgomery Street, the Latin School occupying the former, and the English High School the latter.

There are two courts within this block, of equal size, the division between the two being made by the location of a central building, which is connected with the two main street fronts by a transverse corridor.

Across the easterly end of the block and connecting its two sides are located the drill hall and gymnasium; across the westerly end, fronting on Dartmouth Street, a building, as shown on the plan, is proposed to be erected hereafter for the accommodation of the school board and its officers. (This building was never erected, but instead the school board and officers were provided for in a building at 15 Beacon Street, and the site intended was not used. The writer formerly lived on this site and attended classes in the English High School Building.)

Each of the street fronts of the main buildings is divided into three pavillions. The main buildings have three stories and a basement, the latter being a clearstory facing the courts. There is in the central portion an entrance from either street, and two in each main building at the terminations of the longitudinal corridor, one being in each end.

There are eight staircases, one in each end pavillion, connecting with the entrances at the terminations of the longitudinal corridors, and two in each of the central pavillions, right and left of the grand entrance respectively.

The drill hall is on the street level. It is 130 ft. long on the floor, 62 ft. wide, and 30 ft. high; above the galleries, which are at the ends, it is 160 ft. long. The seating capacity of floor and galleries is sufficient for twenty-five hundred persons. In connection with the drill hall there are two rooms for the military officers and an armorer's room.

There are forty-eight school rooms, twenty being on the first and second floors respectively, and eight on the third floor; twelve receive their light from the courts, the remaining thirty-six occupy the street fronts. The typical schoolroom of the building is intended for thirty-five pupils, but will accommodate forty or more, according to the mode of seating and the size of the pupils. It is 32 ft. long, 24 ft. wide and 14 ft. high. It is located so that it may be lighted by four windows, 9 ft. 6 in. by 4 ft. 6 in., placed on the longer side 6 in. from the ceiling and 4 ft. from the floor, and equally spaced, with transom sashes hung above the sliding sashes. It has, on the side opposite the windows, two doors opening from the corridor; over the doors are top lights for ventilation and between them two high lights hung on hinges. The pupils face the platform at one end of the room, and receive the light on their left. Under the windows are cabinets for coats and caps, thre being no separate rooms for

for this purpose. There is a closet sunk into the end wall for a teacher's wardrobe.

The assembly halls are on the third floor in the central pavillions and are 82 ft. long, 62 ft. wide and 25 ft. high, each having a seating capacity for eight hundred and fifty pupils, with the amphitheatre arrangement.

The library rooms are on the first floor, on the right and left of the transverse corridor in the central building, each being 54 ft. long and 32 ft. wide.

Over the libraries, and of the same size and shape, on the second floor are the lecture rooms for the natural sciences. Each of these has two connected rooms - one for physical apparatus, and the other for specimens of natural history.

Near the principal entrances, on the first floor of the central building, there are, for each school, a teachers' conference room, with an adjoining reception room, a headmaster's office, and a janitor's room; on the second floor, adjacent to the transverse corridor, are two suites of apartments, each having four rooms for janitors' dwellings, each suite being connected with the basement by a separate staircase.

There are two drawing rooms for each school on the third floor, both having skylights and side lights; at either end is a room for models and copies.

In the central pavillions, on each floor, are dressing rooms for the teachers. The water-closets and urinals for the pupils are located in four sections winged out from the principal staircases in the central pavillions and are arranged in tiers, there being two stories of closets to each story of the building, one of which isentered at the corridor level and the other from the half landing of the staircase above. There are six of these tiers in each section which are connected by a spiral staircase in a round tower at the exterior angle running from the basement to the roof of the building the top of which is surmounted by a large ventilator. By other means in addition to this, the closets are kept completely ventilated.

The basement, besides the space necessary for the steam boilers and the storage of fuel, affords a covered playground for the pupils.

A part of the English High School basement has been fitted for the occupancy of one of the branches of the public library. It is to be hoped that one or two of the basement rooms may be utilize as a refectory, where pupils may obtain wholesome lunches at moderate prices.

No chemical laboratory was supposed to be needed by the Latin School , and hence none was provided; but the provisions for the instruction in chemistry on the English High School side are believed to be as near perfection as has yet been reached, having regard to the objective and grade of the institution. The portion of the block appropriated to this purpose is architecturally a detached building and facing Montgomery Street, and between it and the sotherly end of the drill hall, being separated from it by fire proof walls, as far as convenience of access will allow.

The lower floor is occupied by a lecture room 35 by 40 ft., and capable of seating about one hundred pupils. The room is constructed with rapidly rising tiers of benches, and is fitted with a lecture desk and the ordinary appliances of a chemical lecture room.

On the second floor are the laboratory and accessory rooms. The former is of a general rectangular shape 35 by 30 ft., with an alcove.

Connecting with the laboratory are two small rooms; one is for storage of apparatus, and can be darkened for spectroscopic experiments, the other is a preparing room, but is fitted with working desks and drawers, and is used also as a store room for chemicals.

The buildings are practically fireproof throughout. The corridors are all constructed with iron beams and brick arches, and laid with a finished floor of black and white square Italian marble tiles. The under sides of the arches over the corridors are plastered up on the bricks, and the beams covered with a heavy coating of Keene's cement upon a wire network, these corridors in themselves dividing the whole block into four fire proof sections. The several apartments are separated by brick walls and all the floors and the spaces between the furring upon the walls are filled with fire proofing. The stairways are wrought iron." (Philbrick. REPORT)

What a contrast between this great educational plant and the model school proposed by Woodbridge less than fifty years before, or the very many disgraceful buildings still serving as schools when this Boston edifice was completed. And yet, although this building is still doing noble service, it is far inferior to the more recent buildings erected in many of the smaller cities of the State as, for example, the fine new high school building in Melrose which was dedicated a few months ago. The public Latin School has been removed from this building of 1882 and since 1922 has been housed in a fine structure of its own in the Back Bay.

The objections to the method of clothing disposal provided in the building is obvious.

The heating and ventilating system of the Boston English High and Latin School is much less satisfactory than in later schools. In fact, the system of ventilating is absolutely the reverse of that in use a quarter of a century later. The air then was made to pass from the corridor to the rooms. In the English High and Latin School the passage of air is from the rooms to the corridor. The heating is by the indirect "natural" system with gravity circulation. The objection to this method of heating large schools is evident. In this building a supply of 8 cu. ft. per minute for each pupil was contemplated. Later the laws of Massachusetts required at least 30 cu. ft. per

minute for each pupil. This requirement of air delivery marks the notable progress made in the heating and ventilating of American schools in a generation, for it should be remembered that this building, at the time that it was built, was generally considered to be the most perfect in all respects of any school in the United States.

The adoption of the gymnasium style with its separate graded classrooms for this Boston School, and the acceptance of characteristics of its plan in other high school buildings, appears to have been influential in so changing the system of secondary instruction that the American high school, in its plan and arrangement, became generally a little more than an elaborate development of the graded grammar school. It is still usual in high schools constructed in the twenty years preceding 1910, to find wardrobes adjoining each school room - a feature deived from the neccessities of the primary and grammar school discipline, and not in harmony with the freer spirit which should characterize the secondary school. Separate rooms for each class, and no large study or schoolroom for two or more classes, are provided.

A marked example of the effect of this Boston school building upon the American high school type is the Cambridge High School, built in 1887. The plan of this building differed in nothing from that of a highly developed modern American grammar school, except that its classrooms are 28 by 40 ft., and are not, as in grammar schools, 28 by 32 ft. Neither the Brookline High School begun in 1894, nor the Cambridge Latin School, begun about 1897 is, in these main features, especially characteristic of a secondary school, except for the greater dimensions of the class rooms. And one of them could as well be used for a graded grammar school as for the purpose for which it was intended. This is made evident by the fact that it has frequently occured, when a new high school building has been erected, that its old

building is turned over to the use of the grades without the neccessity for architectural changes. Such was the case in 1933 in Melrose.

A notable feature of the plan of the Cambridge High School is the "emergency" or "hospital" room for use in case of sudden illness. These rooms, which are provided more especially for the girl pupils, have been generally included in the best equipped high schools built since the construction of the Cambridge School. But we must remember that Horace Mann had provided something of the sort in the plan he drew in 1840.

This is the process of improvement which has characterized the period we are now considering. Each new building that was erected contained some new feature which was incirporated into all later buildings, without any fixed standard having been set, but just from the friendly emulation of architects and school boards. Each sought to make some improvement of the high school building erected by them over that built in some other town or by some other architect the year before.

In the Cambridge School a lunch room is also provided. The office of the headmaster, the library, and the office of the secretary of the Board are placed in conjunction. In the library the books are all placed on open shelves and their free use by the pupils is encouraged. The library is not only used as a place of study, but is sufficiently large so that it may be employed at times as a recitation room for advanced classes.

In his report, the headmaster of the school gives the following description of the laboratory accommodations;

> "1. A physical laboratory, with a demonstration table for the teacher, chairs with writing arm attachments for a class when seated, tables with supports for apparatus and lockers for storage, side tables with gas and water.
> 2. A smaller connecting room, with shelves and cases for such physical apparatus as the pupils personally use, and a working table for the teacher and for advanced pupils or special students.

3. A chemical laboratory with one hundred and twenty-eight lockers so that each pupil may have his own equipment and be responsible for its care. The room contains a cheminal hood, where a dozen pupils may work at once with noxious gases; also shelves for the storage of such supplies as are in daily or frequent use.
4. A smaller connecting room, with shelves and cases for supplies, books, balances, and the various materials used in chemical study. This room contains a table supplied with gas and water, and is intended for the use of the teacher or of special students under the teacher's immediate guidance.
5. A small dark-room, with sink, shelves, gas, and electric lamps for photographic purposes.
6. A large lecture room with a raised floor, and chairs for from one hundred to one hundred and fifty pupils, each chair having a shelf to facilitate the taking of notes. Here the teacher of physics or chemistry or, in fact, of any subject, may assemble pupils in larger numbers than usual for talks, lectures, and such experiments as are better performed for the pupils than by them. This room contains closets for storage, cases for lecture table apparatus, a well appointed demonstration table, a stereopticon screen, and a porte-lumiere. Its windows may be darkened at short notice. This room, as well as the five rooms just described, is provided with hot and cold water.

In addition to the six rooms already described, there is a botanical room, with drawers for the school herbarium, cases for botanical specimens window shelves for plants and water; also a mineralogical room and a spacious drawing room, the latter to receive the tables, models, screens, and other equipment of the evening drawing school."

(School Reports of Cambridge for 1887)

The Latin School at Cambridge demonstrates that a plan in the form of a letter H gives a better opportunity for thorough lighting the wide American school rooms than does that afforded by the courtyard type. For the proper lighting of a schoolroom 28 ft. wide with the customary height of ceiling, it is essential to have windows on both sides. The letter H plan gives eight of these instead of four, as in the court yard plan; and further it makes the assembly hall a much more cheerful and dignified room than is permitted by the courtyard plan, when this hall is placed in the center of the court. This building shows coat rooms adjacent to the class rooms, but less absolutely conforming to the wardrobe arrangement of grade schools than in the case of the high school described above. The width of 30 ft. is given to some of the classrooms lighted from one side only, while rooms on the corner, lighted

from two sides, are given a width of 28 ft.

The High School at Brookline follows the method generally adopted in German schools in having no windows in the walls facing the teacher's desk. In the arrangement of toilet rooms in two tiers for each story, this school follows the example of the Boston English High and Latin School. The plan of this building provides for two conveniences which, although novel at the time were later to become almost universal in large high schools - a bicycle run to the basement and a storage room for bicycles. Here too, the lunch room is no longer the makeshift that it was in earlier schools but, as is now customary in high schools, a carefully considered requirement of the building. This school, like the Cambridge High School and the Cambridge Latin School, has the pupils' outside clothing hung adjacent to the classroom, after the fashion of the grade schools; but in this case the clothing is not in a separate enclosure, but is simply alcoved off the corridor.

The High School at Springfield has several large schoolrooms like those in the American normal schools and in the earlier academies. As originally designed, the building was larger, and at the same time, more simple in plan than the present structure. It was to have accommodated one thousand pupils. The assembly hall was in the center upon the first floor, as in the present building, but the classrooms were grouped around this hall, forming four sides of a rectangle instead of three, as at present. The commission in charge of the construction decided to reduce the number to be accommodated to eight hundred, to arrange the building so that the hall would be conveniently used for other than school purposes, and to give the whole a somewhat more monumental and costly exterior than was first intended. The result was the building as it now stands. Its faults as a monumental plan are clearly recognized by its designers; its merits as a practical school plan, with

the special conditions imposed borne in mind, are evident to all conversant with such work.

The basement contains a large lunch room, an acquarium, bicycle rooms, battery and storage rooms, and a room for the girls' gymnasium. The boilers for heating are located outside the building.

Upon the principal floor is the assembly hall, occupying the center of the plan. This is approached from the principal entrance, and through the corridor opposite; also by a broad iron staircase, by means of which an audience may pass out upon the west side and down to the level of the grade surface between this and the old high school building, which still remains standing a short distance away. To the right and left of the main entrance are the office and the private reception room of the principal, the office of the secretary and the room for the delivery of stationery and a limited number of books. Eight class rooms and four recitation rooms are also upon this floor.

A broad covered passageway crossing by the west side of the hall, from which exit is made to the staircase just mentioned, provides a thoroughfare between the front and rear portions of the building, which would otherwise have remained disconnected by the removal of this section of the original rectangle. Similar connection is made in the second story, but in this case the passage becomes a loggia, from which one looks down into the hall below.

The plan of the second story is much like the first, except that over the main entrance is the library. Drawing rooms, laboratories, and physical lecture room, with large storage rooms for apparatus, occupy the third story, while a 12 ft. copper dome, projecting into an inner light well, is used as an astronomical observatory. This dome is so placed as to be invisible from the ground level, except at a very remote distance, and does not essentially affect the architectural expression of the building. This school, starting out as a

hollow rectangle type, became a modified U type.

An example of a school built as an extended building about a corridor of the modified T type, is the Malden High School, built in 1908. The central section of this building contains an auditorium, half circular and half square in plan, entered directly from the main vestibule, the classrooms being in the section of the building on either side of this central section. (A photograph of this building will appear further on) (Plate [illegible])

The buildings so far described will serve as illustrations of the types of secondary school buildings erected during the quarter century following the final removal of the district school handicap. Their progress was due to the competition between such architects as;

Cooper and Bailey	Charles F. Everleth
George A. Clough	E. M. Wheelwright
Kilham and Hopkins	Parker, Thomas and Rice
Herbert D. Hale	Hartwell, Richardson and Driver
Brainard and Leeds	Andrews, Jacques and Rantoul
Chamberlain and Austin	Frank Irving Cooper

to mention only a few of those who were designing high schools in this State during that period.

Besides the Latin and English high schools, there have grown up several other kinds of secondary schools in the public school systems. The one which seems to require the greatest difference in architecture is the type variously known as "manual training", "manual arts", "mechanic arts", "technical", or "practical arts" high schools. The course in these schools is designed to develope manual skills but not to teach trades. For the latter purpose, some thirty-two schools have been established in various parts of the state nearly all of them since the period under discussion. In the former intellectual activity is encouraged by the study of books and of tools, materials and mechanical processes. Manual training is but one factor of the

curriculum, and such training is used as a means to an end, not as an end in itself. The height of the enthusiasm for the erection of such schools seems to have passed, partly because there are not enough of them to supply the demand, and partly because courses in manual training are now a part of the curriculum of most comprehensive high schools.

Schools of this type are provided with the classrooms, recitation rooms, laboratories and drawing rooms of high schools, but they are further provided with rooms equipped with the necessary benches, tools and machinery for teaching the elements of carpentry, wood carving, turning, forging and machine shop practice. Drawing rooms are more important features than in other high schools, and in some cases molding and clay modelling rooms are furnished.

The first schools of this type were in England and northern Europe, and in 1882 the first one in America was built in St. Louis. Then in 1885 one was built in Toledo as an addition to a large high school. In this state the two earliest examples were those at Cambridge and Boston.

The Cambridge Manual Training School was founded by Mr. Frederick H. Rindge and presented by him to the city. Its name was changed some years later to honor this founder. The shops and drawing rooms were in a building by themselves, connected by a covered way with the building assigned to the academic course. In this latter building are schoolrooms, physical laboratory, assembly hall, fire drill hall, and gymnasium.

In the woodworking room of the mechanical building there are two departments; one for general carpentry and the other for wood turning and pattern making. Sixteen pupils can be accommodated at one time in each of these departments. The iron working room is also fitted for two distinct kinds of work. The appliances upon the west side are adapted to chipping, filing, drilling, scraping, etc., while those upon the east side are for the machine

tool work. Classes of twelve pupils are accommodated in each department. The forge shop is furnished with portable forges, connected with a blower and an exhaust fan, together with anvils, tool benches and tools for classes of fifteen pupils. The drawing rooms upon the second floor are furnished with convenient appointments for classes of thirty pupils. Adjoining the drawing rooms are a reading room and a supply room. Three classes are accommodated daily in each department.

With the exception of the space required for the janitor's room, the central portion of the basement and the entire southern wing are devoted to the toilet rooms, wash rooms, and two hundred and seventy-five lockers for the accommodation of the pupils' clothing. These lockers are grouped about large sinks supplied with hot and cold water. Leading from one of the wash rooms is a well appointed shower bath. Adjoining the kitchen is a small dining room in which dinners are served at cost, to the instructors and such pupils as desire them. The remaining space in this wing is devoted to a supply room and to a large dining room in which pupils eat the lunches which they bring to school. This is the description of the original building. About seven years ago, a new building was occupied, which provides even better quarters.

The Mechanic Arts High School in Boston was opened in 1893, but the north wing, containing the laboratories and library, was not occupied until 1900. Another addition was built in 1926.

In the basement are the forge shop, in a one story structure, the boiler room, coal room, engine room, and bicycle room. Here also are the principal toilet rooms, and dressing rooms containing two hundred and fifty-eight clothes lockers, each fitted with a combination lock and adapted to accommodate two boys. Each of these lockers is 23 by 18 in. in plan and 5 ft. high. The floors and the upper panel of each door, are of stout wire netting. In one of

the dressing rooms is the lunch counter.

On the first floor are the office of the head master with a lobby for visitors and a library adjoining, the chemical laboratory and the room for chemical stores, two schoolrooms, one of which accommodates eighty pupils and the other ninety-six, three recitation rooms, the machine shop, the tool room for metal working tools, a storage room for metal stock, an office for the instructors in metal work, and a private room for men teachers.

On the second floor are the physical laboratory, a teachers laboratory, and a storage room for apparatus, with a dark room adjoining, a private room for women teachers, two schoolrooms identical with those on the first floor, two woodworking rooms for first year pupils, the carpentry tool room, the room for the preparation of wood working stock, and the finishing room.

On the third floor are two schoolrooms identical with those on the first floor, a small schoolroom which accommodates thirty pupils, two drawing rooms, a storage room for drawing materials, a woodturning and pattern-making room, a modeling room, and a toilet room. The two large schoolrooms are separated by flexible doors, so that they may be thrown together to furnish an assembly hall for occasional uses. This description is derived partly from a visit to the school and partly from the report of Dr. Charles W. Parmenter, the first headmaster, who describes in the smallest detail the equipment of each of the shops and drawing rooms. (Annual Reports, Boston School Committee, 1893)

Schools of the character of the two just described, were established in many of our larger cities, either in buildings originally intended for other purposes, as in Somerville, or sometimes in fine structures such as the Technical High School in Springfield.

In the description of the Rindge Technical School in Cambridge, mention was made of a shower bath installed off one of the wash rooms. The necessity

for such a convenience in a school where much of the work is of such a nature as to induce profuse perspiration, is at once evident. But to provide opportunities for bathing in the ordinary type of school, would have been a novel idea at the time that the Rindge School was erected, and would have been considered ridiculous if not preposterous in the earliest days of school planning. But gradually the school has taken over many functions which were previously thought of as belonging to the home, or at least not to be within the province of the school.

The first school baths were established in Goettingen in 1886, spread to other parts of Germany, were provided in Swiss and Parisian schools, and quite generally in the Scandinavian countries. In fact, in Sweden, instruction in swimming was obligatory. Into some of the English schools, plunger baths were introduced.

The first American school in which bathing facilities were provided was the high school of Scranton in Pennsylvania; the Paul Revere School in Boston was the next. This installation is described in the Boston School Report for 1899, as follows;

> " This school is located in one of the most congested sections of the city, inhabited by a dense population, consisting mainly of Hebrews and Italians, with a liberal persentage of other nationalities.
>
> It was fitting therefore, that in this crowded section should first be tried the experiment of school baths. Two sets were installed in the new Paul Revere school, one for each sex, at opposite ends of the basement, which are open every school day. On the girls' side there are ten individ -ual compartments, each containing a seat and a spray. These compartments are of slats on three sides, with the entrance screened by a rubber curtain hung from rings, which can be drawn at the pleasure of the occupant. There are also in the room thirty dressing closets, each containing a seat, hooks for clothing, and provided with a self-closing blind door. The floor is of concrete, covered with movable slatted walks, made in short sections. The 'Gegenstrom' system is in use, whereby the temperature of the water may be accurately registered and regulated, and a matron is in daily attendance.
>
> The boys' side has no individual compartments, the showers being grouped in a space about 10 x 15 ft., so that twelve pupils may bathe at the same time. The remainder of the room is used for dressing purposes, an oaken bench running along two sides of the walls, above which are hooks for

clothing. This room is in charge of the janitor.

Soap and towels are furnished without expense to the pupils. The arrangements for the use of these accommodations are such as to afford an opportunity to every pupil to bathe once a week throughout the school year, but this is not compulsory. A certain time for bathing is assigned each class, when those pupils who so desire are given an opportunity to avail themselves of the facilities described.

Pupils in the grammar as well as in the primary school are admitted to these privileges with the exception of those who are too young to dress or undress themselves without considerable assistance.

Between one hundred and fifty and one hundred and twenty-five pupils bathe daily, and the success of the experiment, as it is termed, seems assured. The estimated expense of conducting the baths, including the salary of the matron, soap, towels, laundry and heat is about $85 a month".

This part of the report is closed with the remark,

" The introduction of school bathing will do much to mitigate the 'school smell' (of which Woodbridge and Mann had complained) and will be of great hygienic advantage to the community. Their use will be generally voluntary with the pupils but the teacher should be empowered to require the bathing of certain pupils." (To which many teachers will say, "Amen")

(19)

VIII. THE PERIOD OF STANDARDIZATION. 1910-1937

It would be possible to secure a description of each new high school building as erected, but for the purpose of this paper it is sufficient to describe only the typical schools which have been mentioned. As has been said, the past half century can be divided into two nearly equal parts, (1) that in which individual architects, guided (and we must admit, sometimes hampered) by the local school authorities, attempted to make each new school building contain some feature which marked it as an improvement over all previously built, and (2) that in which both architect and school board have felt themselves compelled to conform to certain standards which have tended to become more and more fixed, with regard to the essentials of schoolhouse design.

Although it is possible to designate the beginning of this last era very roughly as about the year 1910, it must be understood that the growth of standards has been a very slow and gradual one. The American Institute of Instruction was attempting to fix certain standards when they published that essay of William Alcott (and incidentally the infinitely more important one by William Woodbridge on The Construction of School Houses, in August 1831). Horace Mann denied any such intention, and yet did set a standard in his second report in 1839, and Henry Barnard performed a large service in this respect.

It was Bardard who turned the attention of architects to the design of school buildings, and from that time to this, various architects have seen fit to publish books attempting to tell in detail, just how such buildings should be designed. A typical book of this kind is called MODERN AMERICAN SCHOOL BUILDINGS, by Warren Richard Briggs, F.A.I.A., published in 1899 by John Wiley and Sons. In it he discusses such subjects as,

Appropriations	Competitions
Specialists	Commissions
The Ethics of Superintendence	Ready-made Plans
Entrance halls and staircases	Windows and Lighting
Hat-and-cloak Rooms	Play rooms
Heating and Ventilation	Sanitary Arrangements
Hygienic Construction	Suburban Schoolhouses
City Buildings	Restricted Sites

(5)

This building book was so well thought of that it was published serially in the magazine, Architecture and Building, and as a part of the report of the State Board of Health in some states.

In another book (Bruce.SCHOOL ARCHITECTURE. Milwaukee 1906) the essential considerations in school architecture are described in alphabetical order;

Architects Fees	Drinking Fountains	Partitions -Movable
Air-Washer	Dust Flues	Principal's Room
Assembly Rooms	Entrances	Rest Rooms
Balustrades, Railings	Elevators	Roofs
Basement	Excavations	Site
Blackboards	Exposure	Sites (Competitive)
Boiler and Coal Rooms	Fences	Sites (Condemnation)
Ceilings	Flooring	Stair Cases
Chalk Troughs	Floors	Steam
Chimneys	Floor Plans	Teachers' Bookcases
Class Rooms	Foundations	Teachers' Room
Cloak Rooms	Gymnasium	Teachers' Wardrobe
Coal	Height	Temperature
Cooking School Tables	Humidity	Toilet Rooms
Corridors	Humidostat	Trees
Cost	Janitor's Room	Ventilation
Deafening	Lighting	Walls -Plastered
Decoration	Manual Training Rooms	Wardrobes
Doors	Material	Windows
Drainage	Metal Work	Window Shades Etc.

This book on School Architecture, A Handy Manual, is by W. G. Bruce, Editor of the American School Board Journal, a magazine which has had an increasing influence in the improvement of school house planning and equipment, as well as in the business supervision of school systems.

It will be noticed that there were not many things which Mr. Bruce forgot. The book is small enough to be carried in the vest pocket, and yet contains most of the essentials which architects or school authorities need

to consider. In addition to the alphabet of essentials, it contains special chapters on Heating and Ventilating, School House Plans, Janitor Service, Architect's Professional Practice, and nearly a hundred photographs of outstanding school buildings erected in the years just preceding its date.

One of the most practical laws governing the construction of public school buildings was enacted by the state legislature of Pennsylvania in 1905. It reads in part,

> "...in order that due care may be exercised in school buildings hereafter erected, no schoolhouse shall be erected by any board of education in this state, costing more than four thousand dollars, until the plans and specifications shall show in detail, the proper heating, lighting and ventilation of such building. Light shall be admitted from the left, or left and rear, of class rooms, and total light area must, unless strengthened by reflecting lenses, equal at least 25% of the floor space. School houses shall have in each classroom, at least fifteen square feet of floor space and not less than two hundred cubic feet of air space per pupil, and shall provide for an improved system of indirect lighting and ventilation, by means of which each classroom shall be supplied with fresh air at the rate of not less than thirty cubic feet per minute for each pupil, and warmed to maintain an average temperature of seventy degrees Fahrenheit during the coldest weather."

The reader would do well at this point to turn back to Chapter IV and judge how William Woodbridge would have rejoiced to see this law. He only dared to ask for a temperature of fifty-five degrees. And the law would quite have met the approval of Dr. Lincoln.

The standards for the construction of school buildings have come from five main sources;

1. Experiments of architects, first stimulated by such educational pioneers as Woodbridge, Mann and Barnard.

2. State inspectors of heating, ventilation, safty, lighting, etc.

3. State laws.

4. Educational organizations, such as the National Education Association and the Federal Bureau of Education.

5. Surveys by educational experts on school requirements.

Let us next, therefore, examine a typical publication of the second type. This is a book published by Joseph A. Moore in 1905. Mr. Moore was the State Inspector of Public Buildings in Massachusetts, and had engaged in that work for eighteen years prior to the writing of THE SCHOOL HOUSE, Its Heating and Ventilation. He had worked with Rufus R. Wade, Chief of the Massachusetts District Police, who himself had been a former inspector of public buildings.

The book is not a very thick volume but it contains nine chapters, and the latter part of it is devoted to plans, figures and tables illustrating the rules it lays down. It gives in greatest detail the results of experiments with heating and ventilating systems, the state law regarding the installation and operation of these systems, and is a very practical manual for architects of school buildings, for school boards, and for engineers in charge of the heating and ventilating plants of school buildings. It especially applies to the small or ordinary size of building rather than to the large high school. An encyclopedia could not be more authoritative, explicit, or careful in the statement of standards.

Another book by an architect, Wilbur T. Mills (Mills. AMERICAN SCHOOL BUILDING STANDARDS. Columbus 1910) states in its preface that,

> "there is still great need for the dissemination of reliable information regarding correct design and construction of public school buildings in this country"

21

and quotes from the American School Board Journal of April, 1908,

> " There was a time - and not many years ago - when the majority of our American cities and towns saw very little expert skill employed in the designing of buildings for school purposes. Indeed, even now, one often meets people who unblushingly proclaim that 'most any one' can design a school building, since 'it is nothing but a collection of plain, rectangular rooms, a few entrances, exits, stairs, etc.' Worst of all, these people actually seem to believe what they say, incredible as that may seem. Unfortunately, the existence of such sentiments, in altogether too

many otherwise enlightened communities, renders still possible the erection of so-called school buildings which, to those who know, plainly and loudly proclaim hideous defiance of all laws of art, hygiene, ventilation, and in some cases even of common sense." (21)

He then proceeds, as Mr. Bruce did, to advise in greatest detail, about the selection of an architect and how the building committee may know whether that architect has done his work properly. His book is a great improvement on all that had gone before it. Like Mr. Bruce, he includes quotations of state laws. That of Massachusetts he gives on p. 128.

In the state of Massachusetts, school, and all other public buildings are under the authority of the Inspection Department of the District Police, whose inspectors are required to enforce the laws regarding factories and public buildings. The City of Boston, until recently, had a school commission consisting of three persons. It has now "The Department of School Buildings" of which William M. Drummey (a former student of the writer) is Superintendent.

This Department has full charge of the school buildings of the City of Boston, determines the character of the school buildings to be erected, selects the architects and approves the drawings and specifications used for the construction of such buildings, and has prepared a very elaborate and itemized building code, relating to school buildings for the City of Boston, based on the experience and research of the members of the Commission, as well as on the experience gained from the construction of many buildings in recent years. (Seventy-six school buildings were erected or additions built to them between 1918 and 1933) It is believed that this code represents the very acme of public school requirements at the present day, and may safely be considered as authoritative, proper allowance being made for local modifications and conditions necessary in the different parts of the country. This code as it then was, is reproduced in full in Mr.Mill's book and follows over thirty-six

closely printed pages. It seems to live up to all that is claimed for it.

The State law requires,

" Form of specifications to accompany plans for public buildings and school houses.

This form is intended to give architects and others general information as to what is required by law and the regulations of this department, and if fully filled out may be accepted by the inspector in place of a copy of the building specifications, but full detail specifications may be required if deemed essential to a clear understanding of the plans.

The law requires that a copy of the plans of every public building and every schoolhouse (except in the city of Boston, where the Department of School Buildings takes care of it) shall be deposited with the inspector of factories and public buildings of the district in which such building is located, before the erection of the building is begun, which plans shall also include the system or method of ventilation to be provided, together with such portions of the specifications as the inspector may require.

The plans usually required are a plan of each floor, including the basement and the attic, if the attic is occupied, and a front and a side elevation, and also plans and sectional drawings of the system of ventilation. Further plans may be required by the inspector if deemed by him to be necessary.

In planning buildings to be used for school rooms, or places of assembly above the first story, provision should be made for at least two stairways, and such stairways should be as far apart as practicable. No such stairways should be less than four feet wide in the clear and winding steps should be avoided. The height of riser and width of tread of all stairs, measured on the cut of the stringer, should be given on the plans. No flight of stairs should be more than fifteen steps between landings.

The main stairways from places of assemblage should have a width of not less than twenty inches for every hundred persons accommodated therein. Such stairways should be railed on both sides. All outside doors to such buildings should open outwardly, and be plainly so shown on plans. The standing leaf of all pairs of doors leading to ways of egress should be fastened by face bolts, operated at top and bottom by one handle, at a convenient height from the floor.

In the ventilation of school buildings the many hundred examinations made by the inspectors of this department have shown that the following requirements can easily be complied with:

1. That the apparatus will, with proper management, heat all rooms, including the corridors, to 70 degrees F. in any weather.

2. That, with the rooms at 70 degrees and a difference of not less than 40 degrees, between the temperature of the outside air and that of the air entering the room at the warm-air inlet, the apparatus will supply at least 30 cubic feet of air per minute for each scholar accommodated in the rooms.

3. That such supply of air will so circulate in the rooms that no uncomfortable draft will be felt, and that the difference in temperature between any two points on the breathing plane in the occupied portion of a room will not exceed three degrees.

?)9(3)6 048:53 0"_3

4. That vitiated air in amount equal to the supply from the intakes will be removed from the ventiducts.

5. That the sanitary appliances will be so ventilated that no odors therefrom will be perceived in any portion of the building. (See provision of like nature, but much more primitive method, made by Barnard in his octagonal schoolhouse).

To secure the approval of this department of plans showing methods or systems of heating and ventilation, the above requirements must be guarantteed in the specifications accompanying the plans."

The laws of other states were also quoted by Mr. Mills.

In the Journal of the National Education Association for June 1918, Frank Irving Cooper has an article on STANDARDIZATION OF SCHOOLHOUSE PLANNING AND CONSTRUCTION, containing a number of charts which show the progress which was being made in the adoption of such standards as well as the great need for further progress. Two of these charts are of particular interest to us at just this point. One was compiled in 1910, showing that in that year 23 states had laws dealing with 26 phases of schoolhouse construction. The other chart shows that by 1915 33 states had laws regulating 63 phases of the building.

A heavy volume by John J. Donovan, architect, called SCHOOL ARCHITECTURE, Principles and Practices, published by MacMillan Co., in 1921, contains plans and pictures of the newest and best schools in the country at that time, including those of the Wentworth Institute in Boston, the Vocational School in New Bedford, the Smith Agricultural School in Northampton, the Boys' Trade School in Worcester, and the Taunton High School.

The latter shows a most successful treatment by Kilham and Hopkins of Boston, of an old high school building and its annex, which were so incorporated into the new building as to make one harmonious whole, which gives every appearance of having been planned from the beginning for the purposes and site which it serves.

Among the many interesting and valuable chapters contributed by nineteen leading authorities, is a very excellent one by Clarence D. Kingsley, the

Supervisor of High Schools, Massachusetts Department of Education, and chairman of the Commission on the Reorganization of Secondary Education appointed by the National Education Association. Its title is, "The Organization and Administration of Senior High Schools as Affecting Buildings". It has a companion chapter relating to junior high schools by E. Morris Cox, Assistant Superintendent of Schools in Oakland, California.

The article is too long to quote, but it may be outlined as follows:

"Who Are To Be Served? : 1. Organization of the School System; 2. Variations of the Three-Block System; 3. Comprehensive versus Special-Type High Schools; 4. Determination of the Contribution of Area for Senior High Schools; 5. Determination of the Contributing Area for Junior High Schools; 6. Probable Number of Pupils to be Furnished by the Contributing Area.

II. Internal Organization as Affecting Accommodations; 1. Flexibility; 2. Program of Studies; 3. Staff of the School; 4. Size of Laboratories; 5. Size of Classrooms; 6. Actual Size of Classes; 7. Provision for Study; (a) Kind of Provision to be Made, (b) Number of Sittings Required, (c) Size of Study Halls, (d) Articulation of Study Halls with the Library; 8. Time Allotment for Physical Training; 9. Number of Periods in the School Day; (a) Length of Period, (b) Length of School Day.

III. Estimate and Tabulation of Accommodations Needed: 1. Multiple Uses; (a) Laboratory-Recitation Rooms; (b) Gymnasium-Assembly Hall; 2. Sample Tabulation for a School of about 200 Pupils; 3. Sample Tabulation for a School of about 400 Pupils.

Appendix. A Schedule Providing for the Limited Introduction of Supervised Study. Special Provisions for Pupils Who must Work Afternoons and Evenings.

There is also a chapter on Buildings and Equipment for Vocational Schools. In this chapter appear the plans and descriptions of the three schools in this State already mentioned.

The Architectural Forum for August 1922 is the Annual School Building Number. It contains plans and descriptions of the Library Suite and the Administrative Suite of the Brookline High School by Kilham, Hopkins and Greeley.

There is a plan and description of the gymnasium and locker rooms of the Junior High School of Waltham, by the same architects. These are all in an article by the senior member of this firm, on "Planning Details of Schools".

Another plan in this number is that of the Bird School (Plate XLV) (Elementary and Junior High) in Walpole, by R. Clipston Sturgis. An article on "A Heating and Ventilating System" by James J. Mahar, one of the Schoolhouse Commissioners of Boston, is illustrated with plans and diagrams of the Junior High School in the Roger Walcott District of Boston. (36)

But the most interesting and instructive article is that by John Irwin Bright, architect, on "A New Development in School Planning". It decries the tendency to stereotype the school plan and to standardize it to rigidity. And in order to show the possibilities of successful departure from established precedence, he shows a building designed on the plan of an octagon, reminding us strikingly of the much more modest building of the same shape which Henry Barnard published eighty-five years earlier. The building is composed of an assembly hall or auditorium in the center, artificially lighted, with a gymnasium over it, surmounted by a dome and skylight, and with a circular corridor around each with classrooms radiating from this center. It is a radical departure from accepted practice, and offers a suggestion which we may see worked out in actual practice in the future.

Bulletin No.17, issued in 1924 by the federal Bureau of Education, is on American School Buildings, by Fletcher B. Dressler, who also is the author of a most illuminating article in the American School Board Journal for January 1927 on TWO OF THE DIFFICULTIES IN THE WAY OF GETTING GOOD SCHOOL BUILDINGS, in which he blames ignorance by school boards and high pressure by architects. Mr. Dressler was the special agent of the Bureau, who made an intensive and exhaustive study of American school buildings with the idea of affording valuable information in connection with the extensive building program going on all over the United States to relieve the congestion which developed under war time conditions. It was anticipated that over a billion dollars would be

spent for school buildings in the five years which followed. In a later chapter we shall review this building boom as it affected Massachusetts.

The bulletin is most comprehensive. It contains seventeen chapters with an appendix, and numerous plans and photographs of actual typical buildings. It is noticeably free from technical language, so that it can be read with profit by all classes of people, and so far as is possible it deals with buildings that are practical in any part of the country. The chapter on "Swimming Pools", dwells at length on the danger they afford of the spread of infectious diseases, and may partly account for the scarcity of this feature in school buildings in this state. It added its influence toward the standard -ization which was now becoming a fixed tendency for all who recommended reforms in school building.

Perhaps the greatest single influence toward the adoption of standards in school building was the Report of the Committee on School House Planning of the National Education Association in 1925, of which Frank Irving Cooper was chairman. The other members of the committee show a gathering of men who had already distinguished themselves by studies in the problem of how best to design school buildings, both educators and architects. The list includes,

Frank Irving Cooper	Jesse B. Davis	S. L. Smith
Leonard P. Ayres	Roland Haynes	C. B. J. Snyder
Charles E. Chadsey	Clarence D. Kingsley	George D. Strayer
S. A. Challman	Dwight H. Perkins	Lewis M. Terman

and associated with them other notable authorities, some of whom have been quoted elsewhere in this paper. Much could be expected from such a committee.

The report is most formidable, not because of its size, but because of the exhaustive study it shows. The work of the committee was continued well over half a decade. One who finishes reading its dozen chapters, and conning its fifty-nine charts, and its appendix of library classification, feels that

the last word has been said, and that it will be many, many years before any man or body of men can think of any more words to say on this subject. It covers everything.

Some idea of how fully this is done may be obtained from its chapter headings:

I The Process of Planning and Constructing a School Building
II Determination of the Schedule of Rooms
III Choice of the General Plan
IV Capacity of Instruction Rooms
V Capacity of Library and Study Halls
VI Detecting Waste in the Plan
VII State Regulations
VIII Illumination
IX Safety to Life
X Specifications
XI Estimating the Cost of a Building
XII Planning Gymnasiums and their Accessories for Junior and Senior High Schools [74]

As a sample of the thoroughness with which each of these subjects is treated, let us outline the first chapter, showing steps that are discussed:

I Appointment of Investigating Committee, when Necessary.
II Survey of Needs and Existing Accommodations.
III Determination of Number of Pupils to be Accommodated by Proposed Building.
IV Appointment of Building Committee, when Necessary.
V Selection of Architect.
VI Determination of Schedule of Rooms.
VII Selection of Site
VIII Preparation and Approval of Plans and Specifications.
1. Choice of the General Plan
2. Preparation of Site Plan.
3. Preparation of Skeleton Floor Plans.
4. Approval of Site Plan and Skeleton Floor Plans
5. Preparation of Equipment Floor Plans.
6. Approval of Equipment Floor Plans.
7. Preparation of Complete Working Drawings and Specifications.
8. Approval of Complete Working Drawings and Specifications.
IX. Securing Bids
X Letting Contracts.
XI Supervision of Construction and Equipment.

Each of these steps is discussed most fully, in the light of the combined experience of the educators and architects associated on the committee, and

their investigation into existing practices and the numerous recommendations for improvement in these practices which had been published. One can see in reading the report, how carefully it has been worded, and can judge what pains were taken to determine what should be said and what should be left out It is quite evidently not the work of any one man, nor any hurried writing, but the concerted opinion of the best minds to be found.

While every chapter is of great value, the most important contribution has been made in Chapter VI, on "Detecting Waste in the Plan". By actual measurement of a large number of high schools in every state, the average proportion of the floor areas devoted to instruction and to other purposes was determined, and the discovery was made that in most cases there was a lack of economy in planning which could well be eliminated if those responsible for it had had some standard to go by. Hence the committee, after long study of what was and of what might have been, constructed such a standard which, from the shape of the columns used in many of their graphs, they called the "Candle of Ratios", which has turned out to be a most useful assistance to the "lamp of learning".

This summing up is shown in all the chapter headings, on the cover, and best on the title page. The illustration there is headed with the motto,"Less Waste, Greater Efficiency". The ratios into which the floor area of a school building should be divided, are:

Walls and Partitions	Not over 10%
Flues	Not over 3%
Stairs and Corridors	Not over 20%
Accesories	Not over 1 %
Instruction	Not less than 50%
Administration	Not over 16%

This summing up of what ought to be, has been very generally accepted throughout the country, as the rule and guide for all school buildings that

have been erected since its publication, and there is a very wide agreement that it is likely to remain the standard until conditions are very greatly changed from what they are now.

The fifth type of influence toward standardization is well illustrated by a book called SCHOOL BUILDING PROGRAMS IN AMERICAN CITIES by Nickolaus Louis Englehardt, Professor of Education at Columbia University, and published by that University in 1928. It contains his report of surveys in which he had a part, in ten American cities; Lynn, Mass., Watertown, N.Y., Fort Lee, N.J., Paducah, Ky., Greensboro, N.C., Augusta, Ga., Jacksonville, Fla., Beaumont, Tex., West Aurora, Ill., and Rye, N.Y.

In his introduction, Dr.Englehardt states that,

> "the average annual expenditures for school buildings in the United States approximates $400,000,000 a year". (9)

He believes that with such large sums involved the results should be more permanent than they usually are. He declares that a careful survey, considering not only present needs but probable future growth as well, would greatly assist in the wise expenditure of this initial outlay.

Since Lynn is in the state we are studying, we shall confine ourselves to that survey. The subheadings of the report on that city are:

> "Scoring Lynn's present school buildings.
> Lynn's school buildings scores compared with other cities.
> Types of school buildings found in Lynn.
> Observations on certain items.
> Some of the outstanding faults in each building.
> Population of Lynn and its trends.
> Distribution of homes in Lynn.
> Residential permits.
> Trends of growth as measured by the sections of the city in which children are born.
> Overlapping among present school centers.
> An ideal elementary school building program for Lynn.
> Residential distribution of the elementary school population.
> Junior high school building program as developed in Lynn.
> The building program:

The building program:
First step - Senior high school program
First step - Junior High school program
First step - Elementary school program
Second step - Senior high school program
Second step - Junior high school program
Second step - Elementary school program
Third step - Senior high school program
Third step - Junior high school program
Third step - Elementary school program
Costs of the first step proposed in the school building program." (9)

The criticism of the two high school buildings will most interest us;

"English High School. Inadequate site. Unfortunate position. Proximity of structure to the rear destroys classroom lighting. Stairways inadequate.

Classical High School. Inadequate site. Not planned for additions. Very unsatisfactory cafeteria. Unsatisfactory science rooms." (9)

As a first step in remedying these conditions he suggests;

"English High School. It is recommended that no further extensions be made to the classroom facilities of the English High School. An auditorium is, however, badly needed in this building and should be erected during this step of the program, if funds can be secured. If not, it must be borne in mind that this need is a serious one and the facilities should be provided at the earliest possible moment.

Classical High School. Because of the destruction of the Corbett Junior High School by fire and the acceptance by the school committee of the recommendation that the Classical High School be converted into a junior high school, the most immediate need for school building development is the minimum purchase of a ten acre site for a new Eastern High School, and the construction of a building upon this site in which a comprehensive high school program may be advanced. The survey staff strongly recommends that the future high school program for Lynn be developed on a regional basis. The need has also been recognized for removing high school children from the immediate business district and locating high schools on sites which are centrally located, not only with respect to the present residential regions, but also with respect to the future residential development." (9)

Twenty-one illustrations and seventeen maps support this survey with its recommendations. It was so convincing and logical that Lynn has adopted it and has made a good start on carrying it out, almost to the letter.

In this chapter we have sampled some of the outstanding sources of standardization of school buildings. The most influential and exacting of these is the fourth one, the report of the Schoolhouse Planning Committee of

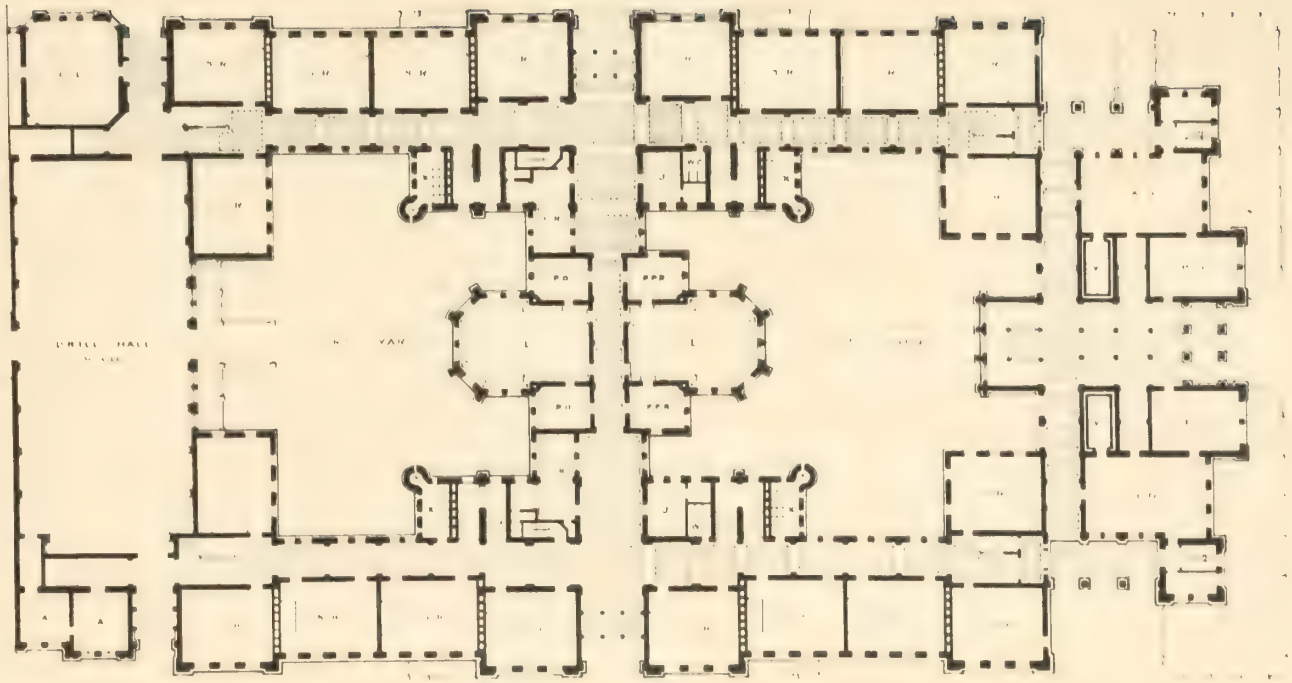
the National Education Association, and we shall attempt to measure several secondary school buildings in the light of its candle of floor ratios.

It must not be understood that the process of standardization has been carried to the degree that all school houses look alike, as do houses in a new real estate addition. There is still much for the architect to do, not only in adjusting the building to the needs of the community which owns it, but also in the details which are not fixed by standard requirements.

A momentary fear was felt in some quarters, since the federal government has been extending aid in the financing of many new school buildings, that there would be a further tendency toward standardization from that quarter. But apparently the government supervision has been confined to the financial consideration and the actual form of the buildings erected under the Works Progress Administration and the Public Works Administration has been left to the local architects and building committees as heretofore.

MONTGOMERY STREET

PASSAGE FROM CLARENDON STREET



FIRST FLOOR PLAN

WARREN AVENUE

STREET

LIBRARY

ADMIN

CHEMICAL LECTURE HALL

LABORATORY

PRIVATE OFFICE

PLATE VIII

IX. IN THE LIGHT OF THE CANDLE.

The National Education Association, in its report of the Committee on School House Planning in 1925, provides us with a convenient "Candle of Ratios", by which it is proposed that the efficiency of school houses may be measured. In the light of that candle, let us actually measure a few secondary school buildings.

Through the kindness of William W. Drummey, Superintendent of Construction and Head of the Department of School Buildings for the City of Boston, the writer has been able to secure the plans of eight school buildings of that city, as follows:

High School Buildings

1880	English High School
1907	Charlestown High School
1915	High School of Commerce
1934	Jeremiah E. Burke High School

Intermediate (Junior High School) Buildings

1922	Frank V. Thompson School
1925	Grover Cleveland School
1926	Donald McKay School
1931	Mary E. Curley School

The earlier secondary schools were built without any planning at all. Then, later, when plans were used, they were not preserved. Later still, the plans which wwre intended to be preserved, were destroyed by fire. The Department of School Buildings is gradually having these plans redrawn, but so far they have none earlier than 1880, and that one merely because the building was particularly important. However, these eight are fairly representative of five decades and will serve the purpose of sampling, both for the period of competition between architects, and for that of growing standardization.

The building of the Boston English High and Latin School has already been described (pp.80-83) . It was not possible to obtain the plans of the entire building. We have the central portion only of the first floor and of the basement, and only two thirds of the third floor. These are typical, however, and the ratio in them is approximately the same as it would be if the plans were complete. With very few exceptions the two sections of the building are alike, in fact it is nearly bisymmetrical on either side of either of the two center lines.

The basement contains the boiler rooms with coal pits and machinist's quarters in the central pavillion, while on each side there is a play room and several rooms whose use is not designated. We have therefore assigned them to the classification of accessories, although it is equally probable that they might be assigned as administration. The areas are:

Two play rooms (Instruction?)		3332
Accessory rooms	4, 32 x 24	
	4, 30 x 25	
	4, 21 x 18	
	(Total accessory)	7684
Administration		4830
Corridors and stairways		3488
Flues		96
Walls and partitions		2350
Total floor area		22572

The central portion of the first floor, shows these areas:

4 class rooms	29 x 24 -	2784	2 masters' rooms	15 x 18 -	540
4 class rooms	24 x 32 -	3072	2 toilets	11 x 18 -	496
2 libraries	28 x 43 -	2408	2	7 x 18 -	252
2 reading rooms	15 x 18 -	540	2	10 x 18 -	360
Total instruction		8804	4	9 x 18 -	648
			2 janitors' rooms	13 x 17 -	442
Total administration		3894	2 teachers' rooms	17 x 34 -	1156
Corridors and stairways		8422	Accessories		0
Flues		166	Walls		1254
			Total floor area		[illegible]

The second floor is the only one of which we have the complete plans.

The eastern third shows these areas:

2 class rooms	32 x 24 - 1536		Corridors and stairways	2379
2 class rooms	30 x 25 - 1500		Flues	60
2 class rooms	32 x 24 - 1536		Accessories	0
1 class room	28 x 47 - 1356		Administration	0
2 galleries	13 x 26 - 728		Walls	360
Total instruction		6656	Instruction	6656
			Total floor area	9395

The central portion of the second floor shows:

2 class rooms	32 x 24 - 1536		2 toilets 11 x 18 -	396
2 class rooms	29 x 24 - 1392		1 supply room 12 x 22 -	264
2 class rooms	29 x 24 - 1392		1 store room 18 x 21 -	378
2 class rooms	24 x 32 - 1536		1 key room 13 x 16 -	208
2 class rooms	26 x 43 - 2236		2 toilets 11 x 18 -	396
4 recith rooms	15 x 15 - 1080		Total administration	1642
1 athletic room	18 x 21 - 378		Corridors and stairways	7258
1 band room	18 x 21 - 378		Flues	156
1 orchestra room	12 x 16 - 208		Walls	2813
			Accessories	0
Total instruction		10136	Instruction	10136
			Total floor area	22005

The western third of the second floor shows:

2 class rooms	25 x 30 - 1500		4 toilets 11 x 18 -	792
4 class rooms	24 x 32 - 1536		Corridors and stairs	1762
2 class rpoms	25 x 30 - 1500		Flues	56
Total instruction		4536	Walls	780
			Accessories	0
			Instruction	4536
			Total floor area	7128

The eastern portion of the third floor has these areas:

1 gymnasium	58 x 120 -		Janitors' closet 7 x 16 -	112
	17 x 41	7657	Corridors and stairways	1164
2 class rooms	24 x 32 -	1536	Flues	60
2 class rooms	25 x 30 -	1500	Accessories	0
1 class room	25 x 31 -	775	Walls	1287
1 drawing room	33 x 35 -	1155		
Total instruction		12623	Instruction	12623
			Total floor area	15186

Summary of the areas on seven of the ten floor plans of the Boston English High and Latin School building:

	Total	St & Cor	Admin	Halls	Flues	Acces	Instr
Basement	22572	5438	4830	2550	96	7684	3332
First floor C	22538	8422	3894	1254	166	0	8804
Second floor A	9395	2579	0	300	60	0	6656
Second floor C	22005	7258	0	2813	156	0	10136
Second floor W	7128	1762	1642	780	50	0	4596
Third floor C	17440	1657	878	2061	54	0	12790
Third floor E	15186	1104	112	1287	60	0	12625
Totals	118264	26070	11356	10905	642	7684	57877
Percentage	100.0%	22.0%	9.6%	12.6%	0.5%	6.4%	48.9%
N.E.A. standard	100 %	20 %	16 %	10 %	3 %	1 %	50 %
Variation		2 %	6.4%	2.6%	2.5%	5.4%	1.1%

Here the variation is highest in administration and accessories. That has been explained as caused by the lack of designation on the plan of the rooms in the basement. If all of them were known to be under the classification of administration, as they very well may be, then the variation in each of these two classifications would be reduced to 1 %. For a building that is over a half century old, the Boston English High and Latin School is remarkably near to the standard in floor area devoted to instruction.

CHARLESTOWN HIGH SCHOOL

The Charlestown High School, built by Stickney and Austin in 1907, consists of a ground floor, first, second, and third stories, and a partially excavated basement containing the heating plant. Disregarding all of this basement except the part actually used for administrative purposes (boiler rooms, etc.) we confine our figures to the four floors fully in use.

The ground floor contains the gymnasium and quarters for the household science classes, with areas as follows;

Gymnasium	51 x 63 =	3199
Showrs, etc.	43 x 47 -	2016
Household science	32 x 33 -	1089
Total instruction		6303
Toilets		710
Wardrobes		445
Matron		68
Boy officers		156
Physical director		88
Evening principal		122
Total administration		1155
Corridors and stairways		2692
Accessories		237
Flues		570
Walls and partitions		4910
Total floor area		15869

The figure which seems most out of proportion is that for walls and partitions. They are thick and numerous, not merely on the ground floor but throughout the entire building.

The first floor of the Charlestown High School has areas as follows:

Class room	# 1	27 x 32 -	864
Rec room	# 2	16 x 21 -	336
Class room	# 7	26 x 32 -	832
Class room	10	26 x 32 -	832
Handicraft	13	32 x 40 -	1280
Rec room	12	17 x 23 -	391
Rec room	17	21 x 27 -	567
Class room	16	26 x 34 -	884
Total instruction			5936
Upper part of gymnasium			2852

Principal's office		21 x 22 -	462
Women teachers		19 x 29 -	551
B Toilet	11	5 x 17 -	85
G Toilet	19	7 x 17 -	119
G Toilet	3	8 x 9 -	72
Toilet	# 4	5 x 8 -	40
Total administration			1329
Flues			472
Instruction			5936
Accessories			185
Corridors and stairways			2854
Walls and partitions			2096
Total first floor area			15794

The second floor areas are as follows:

Class room	# 13	35 x 41 -	1435
Class room	1	21 x 34 -	714
Library	# 4	21 x 40 -	840
Class room	5	19 x 32 -	608
Rec room	# 6	18 x 22 -	396
Class room	# 8	20 x 32 -	640
Class room	# 11	36 x 40 -	1440
Assembly hall	12	47 x 60 -	2820
Stage		12 x 20 -	240
Total instruction			9133

G Toilet	# 14	6 x 29 -	198
Storage	# 2	6 x 16 -	96
Toilet	# 3	6 x 8 -	48
Toilet	7	6 x 10 -	60
Toilets	# 9 and # 10	10 x 32 -	320
Total administration			662
Flues			442
Accessories			28
Corridors and stairways			2040
Instruction			9133
Walls and partitions			3360
Total second floor area			15645

On the third floor the areas are:

Physical laboratory	31 x 41 -	1271
Phys Lab Work Room	10 x 28 -	280
Botany & Zoology	34 x 40 -	1360
Lecture room	28 x 39 -	1092
Chemical laboratory	31 x 41 -	1271
Chem Lab Work Room	10 x 25 -	250
Drawing room	26 x 48 -	1248
Recitation room	16 x 23 -	368
Total instruction		7340

G Toilet	6 x 29 -	174
Storage	4 x 6 -	24
Storage	4 x 6 -	24
Total administration		222
Flues		424
Accessories		224
Walls and partitions		2250
Corridors and stairways		2460
Instruction		7340
Total third floor area		15645

Summing up the areas in the floors of the Charlestown High School:

	Total	St & Cor	Admin	Walls	Flues	Acces	Instr
Ground floor	15869	2692	1155	4910	570	237	6305
First floor	15794	2854	1329	2056	472	105	5966
Second floor	15645	2040	662	3360	422	28	9153
Third floor	15645	2460	222	2230	424	224	7340
Basement	———	———	4500	———	———	———	———
	62953	10046	7868	14596	1753	674	28764
Percentages	100 %	15.9 %	12.5 %	23.0 %	2.8 %	1.0 %	45.7 %
N.E.A. standard	100 %	20 %	16.0 %	10.0 %	3.0 %	1.0 %	50.0 %
Variation		4.1 %	3.5 %	13.0 %	0.2 %	0.0 %	4.3 %

It will be noticed that the greatest variation comes in the items of walls and partitions. The area occupied by walls is extremely difficult to measure, either at the building itself or on a blueprint, and it is easily possible that some error has been made here. But it is undeniably true that the walls of this school are very thick and the partitions very numerous.

HIGH SCHOOL OF COMMERCE

This building was erected in 1915 from the plans of C. Howard Walker and Kilham and Hopkins, associated, on Avenue Louis Pasteur. The improvement in the drawing of a plan is at once evident. Dimensions are easier to find. Rooms are more uniform in size and arrangement. The building is in the shape of the letter E, with the spaces between the three paralel arms partially filled by special rooms, such as gymnasium and assembly hall.

The basement contains six classrooms each 30 x 27, and three 27 x 29. Hence the total basement space occupied by instruction is 7209.

Locker room	50 x 55 - 2750	Corridors and stairways	4280
Shower room	27 x 50 - 1350		
Lunch room	26 x 83 - 2158	Walls and partitions	5040
	26 x 29 - 754		
Toilets 2,	11 x 12 - 264	Accessories	1142
Supply room	19 x 27 - 513		
Toilet	19 x 27 - 513	Flues	200
Coal room	27 x 36 - 972		
	19 x 26 - 494	Administration	19378
	8 x 26 - 208		
	18 x 20 - 360	Instruction	7209
	10 x 18 - 180		
Boiler room	50 x 95 - 4750		
Fan room	25 x 61 - 1525	Total basement area	37329
2,	7 x 8 - 112		
Toilet	13 x 27 - 351		
Storage	13 x 16 - 208		
Wardrobes 2,	5 x 22 - 220		
3,	9 x 33 - 891		
	5 x 35 - 175		
Total administration	18748		
Corrected for closets	19378		

On the first floor are eight class rooms 27 x 30, and four 27 x 29.

Toilet # 105	7 x 27 - 378	Corridors and stairways	6773
Toilet # 106	12 x 27 - 648	Administration	4684
Head master	14 x 27 - 378	Walls and partitions	6154
Gen'l office	25 x 27 - 675	Flues	300
Teachers' room	14 x 27 - 378	Accessories	769
Wardrobes 2,	9 x 27 - 486	Instruction	18712
2,	5 x 27 - 270		
2,	5 x 27 - 270	Total first floor area	37392
3,	8 x 27 - 432		

On the second floor are eight class rooms 27 x 39, four 27 x 29, a gymnasium 50 x 96, a study room 27 x 67, a library 26 x 47, the balcony of the assembly hall 50 x 32, and a lantern room 7 x 7.

Wardrobes	2,	8 x 29 - 464		Corridors and stairways	5986
	2,	5 x 27 - 270		Administration	2768
Toilets	2,	12 x 27 - 648		Walls and partitions	4192
	2,	7 x 27 - 378		Flues	356
Closets		274		Accessories	560
				Instruction	19092
Total administration		2768			
				Total area second floor	30954

The third floor has many special rooms, as follows:

Phys Lab # 319		27 x 35 - 945		Toilets # 315 2,	7 x 27 - 378
Phys Sup Rm 318		10 x 27 - 270		# 314 2,	12 x 27 - 648
Demonstration 317		27 x 27 - 729		Wardrobes 2,	5 x 27 - 270
Class room # 316		27 x 30 - 810		2,	9 x 27 - 486
	320	27 x 30 - 810		Office # 325	13 x 14 - 182
	321	31 x 33 -1023		Emy supply	10 x 31 - 310
	322	31 x 31 - 961		Closets	724
	323	31 x 32 - 992			
	313	27 x 30 - 810		Total administration	2998
	312	27 x 30 - 810			
	311	27 x 30 - 810		Stairs and corridors	4758
Library balc	324	24 x 44 -1056			
Bank		6 x 13 - 78		Administration	2998
Chem'l room	309	27 x 30 - 810			
Elmty Chem	326	31 x 32 - 992		Walls and partitions	5795
Adv Chem	308	27 x 40 -1080			
Demons Room	307	27 x 28 - 758		Flues	400
Class room	304	27 x 30 - 810			
Lecture room	303	34 x 40 -1360		Accessories	724
Drawing room	302	27 x 30 - 810			
Dr Sup Room		8 x 27 - 196		Instruction	16554
Conference rm 301		8 x 18 - 144			
Total instruction		16554		Total third floor area	31027

Summing up the High School of Commerce, we have:

	Total	Corrs	Admin	Walls	Flues	Acces	Instr
Basement	37329	4280	19378	3040	280	1142	7209
First floor	37392	6773	4684	6154	300	769	19714
Second floor	30954	5986	2768	4192	356	560	19092
Third floor	31027	4758	2998	5795	400	724	16554
	136702	21797	29828	19179	1256	3195	61367
Percents	100 %	15.9	21.9	14.0	.95	2.3	44.95
Variations		4.1	5.9	4.0	2.05	1.3	5.05

THE JEREMIAH E. BURKE HIGH SCHOOL

This is one of the newest and, presumably, the best, high school buildings in the state. Erected in 1934 in Dorchester, it might reasonably be expected to conform more closely to the N.E.A. standards than any previous school. But unless our figures are more inaccurate than seems possible, it is not even as close to that standard as the schools previously measured.

The building stands on a site which slopes from front to rear, so that a small part of the first floor and a large part of the basement, remain unexcavated. It is of the elongated H-type. Its construction is described in another chapter.

The excavated part of the basement contains 12981 square feet.

Administration	3348
Corridors and stairways	7782
Walls	1861
Flues	0
Accessories	0
Instruction	0
	12981

The first floor contains the following rooms and areas:

Domestic science suite	900	Stock room	800
Millinary room	1012	Storage # 1	589
Cooking rooms	651	Storage # 2	575
	184	Toilet	450
	828	Lunch room	5859
Sewing rooms	2024	Toilets	728
Music room	1680	Total administration	9001
Auditorium	8560	Corridors and stairways	8195
Total instruction	16039	Walls and partitions	1847
		Flues	205
		Accessories	0
		Instruction	16039
		Total first floor area	35287

Both the auditorium and the gymnasium which is above it on the third floor, extend two stories in height, hence their area is subtracted from the total area of the second and fourth floors, respectively.

The second floor of the Burke School contains thirteen class rooms.

One	27 x 31 -	837
Five	23 x 31 -	3565
Seven	23 x 32 -	4952
Total instruction		9154
Corridors and stairways		8413
Flues		205
Walls and partitions		5002
Accessories		2451
Administration		7848
Total second floor area		33073

Men teachers' room	281
Closet	28
Locker room	783
Health room	117
Master's office	208
Clerks	162
Public office	466
Telephones, radio, etc.	143
Storage # 3	288
Supply	208
Toilet	703
Women teachers' room	280
Toilet	600
Toilet	98
Book storage	336
Lockers	396
Lockers	1060
Storage	351
Moving picture booth	160
Dressing rooms	380
Total administration	7848

The third floor contains 40560 square feet, divded as follows:

Class room	37 x 22 -	682
Class room	31 x 23 -	713
Library	25 x 62 -	1550
Class rooms	24 x 31 -	1488
Exhibition	8 v 23 -	184
Comm'l Geog	32 x 23 -	736
Class rooms 2,	23 x 31 -	1426
Class rooms 2,	23 x 32 -	1472
Class rooms 6,	23 x 32 -	4416
Gymnasium	80 x 80 -	6400
Stage	20 x 52 -	1040
Apparatus rm	15 x 20 -	300
Total instruction		20407
Corridors and stairways		6062
Walls		4085
Flues		205
Accessories		2042
Administration		7759
Total third floor area		40560

Stock room	7 x 25 -	175
Book storage	7 x 25 -	175
Locker room # 6	16 x 29 -	464
Locker room # 5	27 x 29 -	783
Toilet	22 x 23 -	506
Women teachers	32 x 23 -	726
	13 x 19 -	242
	7 x 12 -	84
Bleacher storage	6 x 11 -	220
Book storage	11 x 20 -	66
Toilet	20 x 30 -	600
Shower room	16 x 34 -	544
Locker room	46 x 50 -	2300
Locker room	16 x 16 -	256
Posture room	8 x 15 -	120
Instructor	8 x 15 -	120
Drying room	10 x 17 -	170
Storage	13 x 16 -	208
Total administration		7759

The fourth floor area is divided as follows:

Class rooms 5,	23 x 31 -	3565	Locker room	27 x 29 -	783
Chem Lab 2,	25 x 32 -	1600	Toilet	22 x 23 -	506
Work room	12 x 25 -	300	Locker room	16 x 18 -	288
Genl Sci Room	23 x 31 -	713	Motor Gen Room	10 x 16 -	160
Phys Lab	23 x 32 -	726	Men Tchrs' Room	18 x 23 -	414
Work Room	13 x 23 -	299	Women teachers	13 x 19 -	242
Work room	8 x 23 -	184		7 x 12 -	84
Class room	23 x 32 -	726	Stock rooms 2,	10 x 20 -	400
Phys class room	23 x 32 -	726	Sci storage	12 x 27 -	324
Art rooms 2,	23 x 35 -	1610	Toilet	20 x 30 -	460
Art room	23 x 36 -	841	Locker room	30 x 62 -	1860
Work room	14 x 23 -	322	Book storage	14 x 27 -	378
Biology Lab	23 x 40 -	920	Locker room	4 x 80 -	320
Total instruction		11519	Total administration		4269
Stairs and corridors		6632	Flues		205
Walls		6411	Accessories		3206
			Total fourth floor area		32092

Summing up the areas of the Jeremiah E. Burke High school, we have:

	Total	Cor,S	Admin	Walls	Flues	Acces	Instr
Basement	12981	7782	3348	1861	20	0	0
First floor	35287	8195	9001	1847	205	0	16039
Second floor	33073	8413	7848	5002	205	2451	9154
Third floor	40560	6062	7759	4085	205	3206	11519
Fourth floor	32092	6632	4119	6411	205	2042	20407
	153993	37084	32075	19206	840	7699	57119
Percentage		24.0	20.8	12.5	0.5	0.5	39.1
Variation		4.0	.8	2.5	2.5	0.5	10.9
Without basement	141012	29302	28773	17345	840	7699	57119
Percentage		20.8	20.3	12.3	0.59	5.51	40.5
Variation		0.8	4.3	2.3	2.41	4.51	9.5

Since the basement is quite unusual, it seems fair to disregard it in securing the final percentages, but even with that concession the varuation from the now widely accepted standard is most alarming, when one considers that this building is up-to-date in so many other respects.

THE DONALD McKAY SCHOOL

The Donald McKay School in the Samuel Adams district of East Boston, is a symmetrical, H-shaped, intermediate school of two stories and basement, designed by Charles R. Greco. It seems to be quite well planned, especially in the proportion of floor space devoted to instruction.

There are sixteen rooms in the basement devoted mainly to practical arts, the girls having one side and the boys the other, with even the lunch room divided on the center line by a grill.

As might be expected, most of the basement space is occupied by the boiler rooms, heating and ventilating plant, toilets, store rooms, and other items of administration, totalling 12141 square feet.

The figures for the six divisions of floor space in the basement are:

Corridors and stairways	2301
Administration	12141
Walls and partitions	3618
Flues	120
Accessories	0
Instruction	[illegible]
Total floor space	[illegible]

On the first floor there are fourteen class rooms uniformly 23 x 34, and an auditorium in the middle 50 x 103. The principal's office, waiting room, nurse's room, teachers' room, toilets and wardrobes, total 2303 square feet.

The summary of the first floor divisions is:

Corridors and stairways	6700
Administration	2303
Walls and partitions	2894
Flues	119
Accessories	0
Instruction	16038
Total first floor	28154

The second floor of the McKay Intermediate School contains sixteen class rooms 23 x 34, and the balcony of the auditorium, as instruction space.

Wardrobes, the moving picture booth, and the men teachers' rooms on the mezzanine floor over the picture booth, make the administration 1882 sq.feet.

Corridors and stairways	6976
Administration	1882
Walls and partitions	1905
Flues	119
Accessories	0
Instruction	13312
Total second floor area	24194

The summary for the Donald McKay school is:

	Total	Cor,S	Admin	Walls	Flues	Acces	Instr
Basement	26194	2581	12141	3610	120	0	9934
First floor	26194	6780	2303	2834	119	0	16038
Second floor	24194	6976	1882	1905	119	0	13312
	80582	16137	16326	8417	358	0	39344
Percentages	100.0	20,0	20.2	10.4	0.4	0	49.0
N.E.A.	100.0	20.0	16.0	10.0	3.0	1.0	50.0
Variation		0	3.8	.4	2.6	1.0	1.0

This school was built in 1926, and the plans were drawn before the publication of the N.E.A. Report.

THE ROGER WOLCOTT SCHOOL

The Intermediate School in the Roger Wolcott District was designed by H.H.Atwood. It has two stories and a basement. The basement contains:

Cooking room	22 x 51 -	1122	Girls' toilet	22 x 51 -	1122
Pantry	9 x 22 -	198	Book room	9 x 22 -	198
Dining room	18 x 22 -	396	Coal bin	22 x 27 -	594
Dom sci suite	7 x 16 -	112	Boiler room	42 x 45 -	1890
	18 x 16 -	288	Boys' toilet	28 x 36 -	1008
	8 x 16 -	128	Store room	13 x 23 -	289
Lecture room	22 x 27 -	594		12 x 13 -	156
Wood shop	22 x 41 -	902	Storage	6 x 17 -	102
Electric shop	22 x 41 -	902		10 x 12 -	120
Machine shop	22 x 38 -	836	Electric room	8 x 13 -	104
Tool rooms	9 x 43 -	387	Fan room	22 x 23 -	506
			Men teachers	10 x 22 -	220
Total instruction		5865	Total administration		6305
Stairs and corridors		3226	Walls		1621
Accessories		0	Flues		11

The first floor contains:

Ten class rooms	24 x 34 -	8160	Principal's office	12 x 15-	180
Auditorium	42 x 72 -	3024	Closet	4 x 5 -	20
Total instruction		11184	Waiting room	9 x 10 -	90
			Ten wardrobes	2 x 24 -	480
Flues		384	Ten bookcases	2 x 5 -	100
Corridors and stairs		2979	Total administration		870
Walls		1615	Accessories		0

The second floor consists of:

Ten class rooms	24 x 34 -	8160	Teachers' room	15 x 24 -	360
			Toilet	10 x 19 -	190
Corridors and stairs		2601	Movie booth	9 x 10 -	90
			Storage	10 x 19 -	190
Flues		384	Ten wardrobes	2 x 24 -	480
			Ten bookcases	2 x 5 -	100
Walls		1325	Total administration		1350
Accessories		0	Total second floor area		13820

The summary for the Intermediate School in the Roger Wolcott District:

	Total	Cor,S	Admin	Walls	Flues	Acces	Instr
Basement	17032	5216	6309	1621	11	0	5065
First floor	17032	2579	670	1615	384	0	11104
Second floor	13026	2601	1550	1325	384	0	6164
	47064	10396	8529	4561	779	0	22269
Percentage	100.0	10.3	17.8	9.7	1.6	0	52.6
N.E.A. standard		20.0	16.0	10.0	5.0	1.0	50.0
Variation		1.7	1.8	0.3	1.4	1.0	2.6

This school, therefore, should be given an eminently satisfactory rating, inasmuch as the instruction area is above that required, and the other areas are below the limits which should not be exceeded. It fulfills all the requirements of the N.E.A. "candle of ratios".

The Mary E. Curley Intermediate School in the Agazzis District, built in 1931 by McLaughlin and Burr, architects, has the following areas:

BASEMENT

Dom sci suite	23 x 35 -	805
Nutrition class rm	23 x 45 -	903
3 Cooking rooms	23 x 38 -	2522
Dom sci lunch room	13 x 23 -	299
Pantry	13 x 23 -	299
Unassigned Rm B	15 x 23 -	345
2 Sewing rooms	23 x 37 -	1702
Millinery room	23 x 37 -	851
Class room # 9	23 x 45 -	1035
Sheet metal shop	23 x 47 -	1081
Woodworking shop	23 x 48 -	1127
Electric shop	23 x 42 -	966
Class room # 1	23 x 37 -	851
Print shop	23 x 45 -	1035
Class room # 2	23 x 37 -	851
Unassigned room A	12 x 23 -	276
3 Fitting rooms	9 x 22 -	594
2 Tool rooms	14 x 22 -	616
Stock room	9 x 23 -	207
Tool room	10 x 22 -	220
Lumber storage	17 x 30 -	510
Total instruction		17181

Girls' toilet	17 x 35 -	595
Storage	22 x 57 -	1254
Boiler & pump rms	37 x 57 -	2109
Coal pocket	24 x 34 -	816
Storage	13 x 40 -	520
Storage	18 x 20 -	360
Custodian	11 x 19 -	209
Receiving room	15 x 19 -	285
Food preparation	12 x 39 -	468
Food preparation	5 x 19 -	95
Lunch room	60 x 114 -	6840
Men teachers' room	9 x 23 -	207
Toilet	11 x 15 -	165
Boys' toilet	23 x 32 -	736
Store room	17 x 23 -	374
Electric room	10 x 35 -	350
less stairway	10 x 32 -	320
Total administration		15063
Corridors and stairways		7619
Flues		84
Walls		3315
Accessories		0

FIRST FLOOR

16 class rooms	23 x 36 -	13248
Class room	23 x 27 -	621
Class room	25 x 34 -	850
2 Science rooms	23 x 37 -	1702
Gym and Assem Hall	60 x 80 -	9600
Stage	17 x 30 -	510
Work room	12 x 23 -	276
Total instruction		26807
Stairs and corridors		8866
Walls		4198
Flues		84

Girls' toilet	17 x 35 -	595
Women' toilet	9 x 23 -	207
Women teachers' rm	21 x 23 -	483
Gun room	17 x 18 -	305
Apparatus room	8 x 17 -	136
Book room	8 x 10 -	80
Mens' toilet	7 x 14 -	98
Women' toilet	8 x 17 -	136
Store room	14 x 16 -	224
Store room	7 x 17 -	119
Admin suite	22 x 42 -	924
Total administration		3307
Accessories		0

SECOND FLOOR Mary L. Curley Intermediate School.

18 class rooms	25 x 36 -	14[illegible]04	Girls' toilet	17 x 35 -	595
Class room	23 x 34 -	782	Women teachers r.	20 x 23 -	460
2 Art rooms	22 x 37 -	1628	Movie booth	11 x 15 -	165
Art store room	10 x 22 -	[illegible]	Books and air 2,	17 x 14 -	476
Study room	30 x 41 -	1230	Storage	8 x 13 -	104
Balcony Assem Hall	28 x 60 -	1680	Storage	8 x 14 -	112
Balcony Gymnasium	18 x 60 -	1080	Boys' toilet	15 x 35 -	525
Total instruction		21524	Total administration		2437

Corridors and stairways	6306	Walls and partitions	2931
Flues	84	Accessories	0

SUMMARY OF FLOOR AREAS

	Total	Cor,S	Admin	Walls	Flues	Access	Instr
Basement	43262	7619	15063	3315	84	0	17181
First floor	43262	8866	[illegible]07	4130	84	0	26807
Second floor	53262	6306	2437	2931	84	0	21524
	121006	24751	20807	10444	252	0	65512
Percentage	100.0	20.3	17.0	8.6	0.3	0	53.8
N E A Standard	100.0	20.0	16.0	10.0	3.0	1.0	50.0
Variation		.3	1.0	1.4	2.7	1.0	3.8

SUMMARY OF FLOOR AREAS PERCENTAGES OF SEVEN BOSTON HIGH SCHOOL BUILDINGS.

	Cor.S	Admin	Walls	Flues	Access	Instr	Date
Curley School	20.3	17.0	8.6	0.3	0	53.8	1931
Grover Cleveland	18.3	17.8	9.7	1.6	0	52.6	1925
McKay School	20.0	20.2	10.4	0.4	0	49.0	1926
B.E.H.& L. School	22.0	9.6	12.6	0.5	6.4	48.9	1900
Charlestown School	15.9	12.5	23.0	2.0	1.0	45.7	1907
Commerce School	15.9	21.9	14.0	0.35	2.5	44.95	1915
Burke School	20.0	20.3	12.3	0.59	5.51	40.5	1924
Average	19.0	17.0	12.9	1.02	2.17	47.92	
N.E.A. standards	20.0	16.0	10.0	3.0	1.0	50.0	
Average variation	1.0	1.0	2.3	1.98	1.17	2.08	

It will be noted that the arrangement in the list above places the schools in the order of percentage of area devoted to instruction, rather than of date, and that the earliest of them stands three ranks above the latest one. Five

different decades are represented by these seven buildings, and yet the average floor areas conform quite well to the standard adopted as "the candle of ratios" by the N. E. A. Committee on School House Planning. Since that committee did not publish its report until 1925, and since buildings dedicated in 1928 were probably well along in their designs by that time, we cannot expect to see much effect of this report much before 1930. It is rather difficult to tell from the seven of the eight buildings examined (the Frank V. Thompson School was not measured as the plans did not give data enough for accurate measuring) whether the report did have the effect on the planning of Boston schools, for of the two buildings erected since 1930, one stands at the top and the other at the bottom of the list. But the conclusion which we may draw is that the Report of 1925 calls for ratios that are possible, practicable, and in close conformity to the best practices in modern high schools. It may quite properly serve as a guide to architects of school buildings and to school authorities who are anticipating building a high school.

X. PRESENT CONDITION OF HIGH SCHOOL BUILDINGS.

The writing of this chapter required investigations extending over a period of slightly more than three years. The first attempt to secure the needed information was through the medium of a questionnaire sent to the superintendents of the two hundred and fifty-five towns in Massachusetts which support high schools.

The questionnaire method is seldom very satisfactory. Superintendents especially, receive so many requests for information that some of them are inclined to reply only to such as seem to have the weight of official authority behind them. A few will not even reply to those. The State Board of Education has often failed to receive cooperative response from certain cities to requests for statistics required for official reports.

The questionnaire used was carefully worded so as to confine it to six essential questions, so that superintendents might be willing to answer them. Replies were received from approximately three fourths of the towns in the state, which is a remarkably good showing. Not all of the replies were complete and not all of them were in the form desired, hence the result cannot be regarded as flawlessly accurate. But that is very likely to be the case with the questionnaire method. At best it can only be used to show general conditions.

On the page which follows appear the six questions asked on the original questionnaire, sent out in 1934.

14 Myrtle Street,
Saugus, Massachusetts,
April 10th, 1934

Mr. Superintendent:

In order to secure data needed for my dissertation on THE HISTORY OF SECONDARY SCHOOL ARCHITECTURE IN MASSACHUSETTS I shall greatly appreciate your assistance. Will you kindly supply the information asked for in the following six questions, and return to me at your earliest convenience. I enclose an addressed, stamped envelope for that purpose.

Gratefully yours,
Frank M. Gracey

---

1. In what year was your present high school building erected? _____

2. If you have a separate building for a junior high school, in what year was that erected? (If more than one, give each date) _____

3. If there are any other secondary school buildings in your town, public, private or parochial, please give the name and year.

_____

4. Please put a check mark <u>after</u> each of these architectural features which you have in your secondary school. If that feature was not in the building when erected but has been added since, put a plus mark <u>before</u> the word.

Gymnasium	Swimming pool	Shower baths
Woodworking shop	Machine shop	Print shop
Assembly hall	Study hall	Library
Science laboratory	Radio reception	Movie booth
Dispensary	Microphone transmitter	Cafeteria
Junior-senior high in same building	High school and grades in same building	Practical stage equipment for drama

Any other unique and very modern feature: what? _____

5. Is there still standing in your town, any building which was occupied as a secondary school earlier than one hundred years ago?

6. In what year was the first building erected in your town for secondary school purposes; as a Latin grammar school, academy, or high school?

14 Myrtle Street, Saugus

Dear Mr. Superintendent:

I am quite willing to admit that most questionnaires are a nuisance. And yet some of them serve a very useful purpose. I hope that this may prove to be one of these. I am preparing a history of Secondary School Architecture in Massachusetts, something which has never been done before. I hope to include in it, proper and accurate mention of your own high school. Would you be willing to answer just a few questions and do it this week? Thank you! Here they are:

1. In what year was your present high school building erected? 1856

2. If you have a separate building for a junior high school, in what year was that erected? (If more than one, give each date)

3. If there are any other secondary school buildings in your town, public, private, or parochial, please give the name and year.

4. Please put a check mark after each of these architectural features which you have, in your secondary school. If that feature was not in the building when erected, but has been added since, put a plus mark before the word.

Gymnasium	Swimming pool	Shower baths
Woodworking shop	Machine shop	Print shop
Assembly hall ✓	Study hall	Library ✓
Science laboratory ✓	Radio reception	Movie booth
Dispensary	Microphone transmitter	Cafeteria
Junior-senior high ✓ in same building	High school and grades in same building	Practical stage equipment for drama. ✓

Any other unique and very modern feature: what? _____

5. Is there still standing in your town, any building which was occupied as a secondary school earlier than one hundred years ago? no

6. In what year was the first building erected in your town for secondary school purposes; either as a Latin grammar school, an academy, or a high school? 1856

I have tried not to ask too many questions, but if you could supply me with pictures, plans, or descriptions, either as a gift or as a loan, I shall very greatly appreciate it.

Thank you again,

Frank M. Gracey

Your name Harold M. Ladd

Your town Brimfield, Mass.

The first question had to do with the year in which the present high school building was erected. This was intended to serve a double purpose. It would tell us how old the various buildings now in use are, and also in what years there was the most activity in high school building.

Starting from the earliest date discoverable, the list is as follows:

1856	Brimfield	1827	Haverhill Academy
1860	Bridgewater	1843	Partridge Academy in Duxbury
1866	North Andover		
1869	Kingston		
1870	Boston, Girls' High School		
1870	Haverhill		
1871	Worcester		
1872	Adams		
1874	Ipswich		
1875	West Bridgewater		
1877	Orange		
1878	Ashfield		
	North Brookfield		
1879	Hatfield		
1880	Groveland		
	Shelbourne		
1882	Boston English High and Latin School		
1883	Brookfield		
1885	Pepperell		
	Clinton		
1886	Winchendon		
	Somerset		
	Warren		
1887	Durfee High School in Fall River		
1888	Gloucester		
1891	Plymouth		
1892	Swampscott		
	Worcester Classical		
1893	Ware		
	Malden		
1895	Hopkinton		
	Somerville		
	Northampton		
	Falmouth		
	Easton		
	Rutland		
	Belmont		
1896	Holyoke		
	Medford		
	Charlmont		
	Brookline		

Buildings underlined in red are represented in our photographs.

1897	Marlborough
1898	Uxbridge
	Newton
	Jamaica Plain
	Weymouth
1899	Williamstown
1900	Plainville
	Grafton
	Upton
1901	Stoneham
	Dorchester Girls' High School
	South Boston
1902	Waltham
	Milford
1903	Peabody
	Mendon
	Winchester
1904	Bourne
	Leominster
	Huntington
	Brockton
1905	Norton
1906	Northbridge
	Reading
	Saugus
	Charlestown
1907	Framingham
	Wellesley
	Salem
	Boston Girls' Latin
1908	Princeton
	Winthrop
	Revere
	New Salem
	Newton
	Haverhill
1910	Ludlow
1911	Lynn Classical
	Mansfield
1912	New Bedford
	Easthampton
1913	Marblehead
	Milbury
	Natick
	Worcester Commerce
	Boston Practical Arts
1914	Arlington
	Wilmington
	Boston Commerce
1915	Dedham
	North Adams

Buildings underlined in red are represented in our photographs.

1916	Billerica
	Scituate
	Chelmsford
	Southbridge
	Kingston
	Milton
	Springfield Commerce
1917	Chicopee
	Andover
	Lee
	Belmont
	Amesbury
	Taunton
	Lynn

No dates were given for the high schools of Hardwick, Stockbridge, and Belchertown.

This seems a good place to make a break in the record of high school building. During the year 1917 we became involved in the World War. War is always an interruption to progress and so it proved in this case. Only those buildings which had been already planned were erected during 1917. In 1918, no senior high schools at all were erected, and only four junior high school buildings.

During the war and immediately after the close of it, a real shortage in school houses appeared. The high cost of building materials, the need for economy, and the centering of attention on the war, caused almost a complete cessation of building activity. But, with the removal of those conditions, it became evident that more high school accommodations were badly needed and a boom in school building was started which still continues.

This was the subject of a special investigation by the State Department of Education, the results of which were published in their annual report of 1933, which is largely used as a check on the dates of school buildings after 1917. As this includes junior high school buildings, too, they will be made a part of the list from here on, and those erected before 1918 listed separately.

Our second question called for the date of erection of buildings used as junior high schools. Many of these were buildings used originally for other purposes and later adapted to use as a junior high school. It is claimed that the one erected in Wellesley in 1910 was the first in this state to be devoted from the beginning to junior high school purposes.

The dates of those built before the World War are as follows:

1874	Beverly
1882	Amesbury
1891	Mansfield
1894	Quincy
	Arlington
1895	Andover
1898	Hopedale
	Northampton
	Pittsfield
1900	Lexington (formerly the high school)
1905	Northampton
1908	Chelsea
1910	Hingham
	Wellesley
1911	Stoneyscott
	Franklin
	Lynn
1915	Everett
	Lynn
1916	Chelsea
	Brockton
1917	Plymouth
	Somerville West
	Milford
	Concord

Buildings underlined in red are represented in our photographs.

There is a wide variation in practice throughout the State as to junior high schools. Many towns do not have separate buildings for their junior high schools, but house them in the same buildings with their senior high schools, or with some of the lower grades. Many towns do not have a true junior high school at all, but merely give that name to the seventh and eighth grades. And a number of towns are definitely opposed to either name or fact.

Following are the towns which reported the senior and junior high school in the same building:

Acushnet	Ayer	Barnstable	Brookfield	Chilmark
Brimfield	Chicopee	Deerfield	Douglas	Dover
Duxbury	Easton	Foxborough	Groton	Hamilton
Hanover	Huntington	Kingston	Lexington	Ludlow
Marlborough	Marshfield	North Attleboro	Plainfield	Princeton
Provincetown	Quincy	Revere	Rockland	Rockport
Salem	Saugus	Scituate	Sharon	Shrewsbury
Stoneham	Walpole	Webster	Weston	Westborough
	Wilmington	Woburn	Yarmouth	

In fact three of these - Princeton, Topsfield, Duxbury, and later Sandwich - report that all the grades, from the first to the twelfth, occupy the same building, and we shall see that this is the case with some others than these four. Holyoke reports the junior high school in the same building with the elementary grades, and this too is a common practice.

A very common practice is that of devoting an old high school building, when a new one is erected, to junior high school purposes. In many instances, additions to the old high school building have been made, and the junior high school occupies the addition. This was the case in Saugus. As was true of the high school buildings, it is also true that many of the earlier junior high school buildings have had additions built to them.

It not infrequently happens that the junior high school building is not only the most pretentious school building in the system, but often the finest building of any kind in the town. This is as it should be, for it sets before the future citizens a high standard of excellence, upon which to model the civic structures for which they may some day be responsible. One cannot help recalling that it is within the memory of people now living, that the school building, instead of being the best building in town, was often the worst.

On the next page we resume the list of high school building since 1918.

1918	NORWOOD		Senior-Junior High	6-12
	REVERE	Add to	Paul Revere Elementary and Junior High	4-8
	SOMERVILLE		Southern Junior High	7-9
	SPRINGFIELD	Add to	Buckingham Junior High	7-9
1919	BRIDGEWATER		Junior High	7-9
	NORTH ATTLEBOROUGH		High	9-12
	TAUNTON		High	9-12
1920	CHICOPEE		High	7-12
	FRAMINGHAM		Lincoln Junior High	7-9
	PEABODY	Add to	High	9-12
	WALPOLE		Bird Elementary and Junior High	1-8
	WALTHAM		North Junior High	7-9
1921	AGAWAM		Junior-Senior High	7-12
	ARLINGTON		Junior High West	7-12
	FRAMINGHAM		Memorial Junior High	7-9
	RINGTON	Add to	High	6-12
	LONGMEADOW		Junior High	7-9
	PITTSFIELD		Pontoosuc Elementary and Junior High	1-9
	SPRINGFIELD	Add to	Chestnut Street Junior High	7-9
1922	BOSTON		Frank V. Thompson Intermediate	7-9
	BROOKLINE		High	9-12
	LITTLETON		High	7-12
	NEWTON		Day Junior High	7-9
	NORWELL		High and Grammar	5-12
	SPRINGFIELD	Add to	Forest Park Junior High	7-9
	SHARON		Charles R. Wilber Elementary- Junior High	6-9
	TEMPLETON		High	5-12
	WATERTOWN		West Junior High	7-9
	BOSTON		Public Latin	9-12
1923	ACTON	Add to	Lyman Elementary and High	1-12
	BELCHERTOWN		High	7-12
	BOSTON		Theodore Roosevelt Intermediate	7-9
	CHARLTON		High	7-12
	CHESTER		High	9-12
	CHICOPEE		Memorial Junior High	6-8
	EVERETT		High	10-12
	FRAMINGHAM		Saxonville Elementary and Junior High	1-9
	MARSHFIELD		High	7-12
	NORTHBOROUGH		High	7-12
	NORTHBRIDGE		Junior High	7-8
	PALMER		High	9-12
	REVERE	Add to	Junior High	7-9
	SHREWSBURY		Beal Junior-Senior High	7-12
	SOMERVILLE	Add to	Southern Junior High	7-9
	SOMERVILLE		Northeastern Junior High	7-9
	SOMERVILLE	Add to	Western Junior High	7-9
	STONEHAM		Junior High	7-9
	STOUGHTON		High	9-12
	SOUTHBRIDGE		Mary E. Wells High	7-12
	WAKEFIELD		High	8-12
	WALTHAM		South Junior High	7-9
	WEYMOUTH	Add to	High	9-12
	WORCESTER		Grafton Street Junior High	7-9

1924	ADAMS	C. T. Plunkett Junior High	7-9
	BARNSTABLE	High	9-12
	BROCKTON	B.B.Russell Junior High	7-8
	DEERFIELD	High	6-12
	EDGARTOWN	Elementary and High	1-12
	FALMOUTH	Junior High	7-9
	FITCHBURG	B.F.Brown Junior High	7-9
	GREENFIELD	High	9-12
	LAWRENCE	High, addition	9-12
	MAYNARD	Emerson Junior High	7-8
	MEDFORD	Lincoln Junior High	7-9
	NEEDHAM	Junior High	7-9
	NORWOOD	High	10-12
	QUINCY	Senior High	10-12
	RANDOLPH	Stetson High, addition	7-12
1925	ACTON	High	7-12
	BELMONT	Junior High	7-9
	BEVERLY	High	9-12
	BOSTON	Dorchester Boys' High	9-12
	BOSTON	Grover Cleveland Intermediate	7-9
	BOSTON	Robert Treat Paine Intermediate	7-9
	BOSTON	Washington Irving Intermediate	7-9
	BREWSTER	Elementary and High	1-12
	FRANKLIN	High	9-12
	LEXINGTON	High	10-12
	LUDLOW	High, addition	7-12
	LUNENBURG	High	7-12
	LYNN	Eastern Junior High	7-9
	MALDEN	Browne Junior High	7-9
	MARLBOROUGH	Junior High	8-9
	MEDFORD	Hobbs Junior High	7-9
	MELROSE	Roosevelt Elementary and Junior High	5-8
	MONSON	High	7-12
	METHUEN	Central Junior High, addition	7-9
	ROCKPORT	High	7-12
	SPRINGFIELD	State Street Junior High	7-9
	WARE	Junior High	7-10
	WINTHROP	Junior High	7-9
	W. SPRINGFIELD	Junior High	7-9
	WATERTOWN	High	10-12
1926	BOSTON	East Boston High	9-12
	BOSTON	Memorial High for Girls	9-12
	BOSTON	Mechanic Arts High, addition	9-12
	BOSTON	Charlestown High, addition	9-12
	BOSTON	Donald McKay Intermediate	7-9
	CHATHAM	Elementary and High	1-12
	CHELSEA	High	10-12
	DALTON	High	9-12
	DARTMOUTH	High	9-12
	FALL RIVER	James M.Morton Junior High	7-9
	FOXBOROUGH	High	7-12

Buildings underlined in red are represented in our photographs.

1926	GARDNER	High	9-12
	HOLDEN	High	9-12
	MEDFORD	Roberts Junior High	7-9
	MIDDLEBOROUGH	High	9-12
	MILTON	High, addition	7-12
	NEWTON	High	10-12
	N. ATTLEBOROUGH	Junior High	7-8
	ORANGE	High, addition	9-12
	REVERE	J.A.Garfield Junior High	7-9
	SAUGUS	Sweetser Junior High	7-9
	SUDBURY	Center High	1-12
	WESTBOROUGH	Junior-Senior High	7-12
	WEYMOUTH	Bicknell Elementary and Junior High	1-8
1927	ARLINGTON	East Junior High	7-9
	BRAINTREE	High	9-12
	DANVERS	Richmond Junior High	5-8
	DOUGLAS	Memorial High	7-12
	DUXBURY	High	5-12
	HANOVER	Sylvester High	7-12
	HARWICH	High, addition	7-12
	HINGHAM	High	9-12
	HOPEDALE	General Draper High	8-12
	KINGSTON	High, addition	6-12
	LEOMINSTER	Junior High	7-9
	MEDFIELD	Hannah Adams Pfaff High	7-12
	NATICK	Coolidge Junior High	7-9
	NEW BEDFORD	Normandin Junior High	7-9
	NEW BEDFORD	Roosevelt Junior High	7-9
	NEWTON	Warren Junior High	7-9
	PEMBROKE	High, addition	7-12
	QUINCY	North Quincy High	7-12
	QUINCY	South Junior High	7-9
	READING	Walter S.Parker Junior High	7-10
	REVERE	J.A.Garfield Junior High, addition	7-9
	REVERE	H. Waitt Junior High, addition	1,7-8
	REVERE	McKinley Junior High, addition	7-8
	SALEM	High, addition	9-12
	SHREWSBURY	Calvin Coolidge Junior High	1-9
	SOUTH HADLEY	High, addition	9-12
	SWANSEA	Joseph Case High	9-12
	WHITMAN	High	9-12
	WINTHROP	Junior High, addition	7-9
1928	ADAMS	Junior-Senior High, addition	7-12
	BEDFORD	Junior High	7-9
	FRAMINGHAM	Memorial Junior High, addition	7-9
	GROTON	High	7-12
	HOLBROOK	Sumner High, renovated	7-12
	NORWOOD	Junior High, addition	7-9
	QUINCY	Quincy Point Junior High	7-9
	ROCKLAND	Junior-Senior High	7-12
	WALPOLE	High, addition	9-12

Buildings underlined in red are represented in our photographs.

1928	SANDWICH	H. T. Wing Elementary and High	1-12
	STONEHAM	Junior High, addition	7-9
	SOMERVILLE	High, addition	10-12
	SPRINGFIELD	Chestnut Street Junior High, renovated	7-9
	WEBSTER	Bartlett High	7-12
	WEYMOUTH	High, addition	7-12
	WEYMOUTH	Pond Elementary and Junior High	1-8
1929	ARLINGTON	Junior High West, addition	7-9
	AUBURN	Packachoag Junior High	6-9
	BARNSTABLE	Junior-Senior High, addition	7-12
	BOSTON	Hyde Park High	9-12
	BOSTON	Roxbury Memorial High for Boys	9-12
	CHICOPEE	Michael A.Kirby Junior High	7-9
	NANTUCKET	Academy Hill Elementary and High	1-12
	NORTHAMPTON	Florence Elementary and Junior High	1-9
	SHARON	High	10-12
	SPRINGFIELD	Chestnut Street Junior High, addition	7-9
	TISBURY	Elementary and High	1-12
	WESTFIELD	High	9-12
	WEST SPRINGFIELD	Junior High, addition	7-9
	WEYMOUTH	Hunt Junior High School	1-8
	WORCESTER	High School of Commerce, addition	9-12
1930	AMHERST	Junior High	7-8
	AYER	Junior-Senior High	7-12
	BOSTON	Brighton High	9-12
	BOSTON	Solomon Lewenburg Intermediate	7-9
	CONCORD	High	9-12
	DANVERS	Holton High	9-12
	EASTON	High	7-12
	FAIRHAVEN	High, addition	8-9
	FALL RIVER	Technical High	9-12
	HUNTINGTON	High Addition	7-12
	LUDLOW	High, addition	7-12
	MEDFORD	High, addition	10-12
	MELROSE	Lincoln Junior High, addition	1-8
	NEEDHAM	High	10-12
	N. READING	L.D.Batcheldor Junior High, addition	1-9
	NORTON	High, addition	7-12
	SOUTHBOROUGH	Peters High, addition	1-6
	STOUGHTON	Junior High	7-8
	SPRINGFIELD	Buckingham Junior High, addition	7-9
	WEYMOUTH	Bicknell Junior High Addition	1-8
	WORCESTER	South High, addition	9-12
	WORCESTER	Providence Street Junior High	7-9
	WOBURN	Senior-Junior High	7-12
	YARMOUTH	John Simpkins High and Elementary	1-12
1931	ARLINGTON	High, two additions	10-12
	BELMONT	Junior High, addition	7-9
	BILLERICA	High, addition	7-12
	BOSTON	Mary E. Curley Intermediate	7-9
	DOVER	High	7-12
	FRAMINGHAM	Senior High, addition	10-12

Buildings underlined in red are represented in our photographs.

1931	MILLIS	High	7-12
	NEWTON	Weeks Junior High	7-9
	NORTH QUINCY	High, addition	7-12
	NORWOOD	High, addition	10-12
	PITTSFIELD	High	10-12
	PROVINCETOWN	High	7-12
	REVERE	A. Lincoln Junior High, addition	1-8
	SOMERVILLE	Southern Junior High, addition	7-9
	SOMERVILLE	Western Junior High, addition	7-9
	TAUNTON	High, addition	9-12
	WEYMOUTH	High, addition	7-12
1932	BOSTON	Clarence R. Edwards Intermediate	7-9
	BOSTON	Thomas A. Edison Intermediate	7-9
	BOSTON	Woodrow Wilson Junior High	7-9
	BROOKLINE	High, addition	9-12
	DEDHAM	High, addition	7-9
	EVERETT	Parlin Junior High, addition	6-9
	HAMILTON	High	7-12
	LYNN	Eastern Senior High	10-12
	NEW MARLBORO	Central Elementary and High	1-12
	SPRINGFIELD	Van Sickle Junior High	7-9
	TOWNSEND	Spaulding Memorial Elementary-High	1-12
	WARE	Junior-Senior High	8-12
	WESTON	High	7-12
	WINCHESTER	High, addition	7-12
	WINCHESTER J.	Junior High	7-8
1933	BOSTON	Public Latin, addition	9-12
	BOSTON	Wm. B. Rogers Junior High, addition	7-9
	BOSTON	Joseph H. Barnes Intermediate, addition	7-9
	MELROSE	High	9-12
	SAUGUS	High, addition	7-12
	TOPSFIELD	Elementary and High	1-12
	WAREHAM	High, addition	8-12
1934	BOSTON	Jeremiah E. Burke High	7-12
	PEMBROKE	Elementary and High	1-12
1935	DIGHTON	Junior-Senior High	7-12
	STERLING	High	?
	TEWKSBURY	High	?
	WESTON	Junior High	?
	BOSTON	Patrick F. Gavin Intermediate	7-9
1936	ABINGTON	High	9-12
	ANDOVER	Junior High	7-9
	AVON	Consolidated	1-12
	AUBURN	High	9-12
	DRACUT	High	9-12
	GEORGETOWN	High	9-12
	IPSWICH	High	?
	MARBLEHEAD	High	9-12
	MATTAPOISETT	Junior High, addition	1-9
	MONTAGUE	High, addition	9-12
	NEWBURYPORT	High	9-12
	PLYMOUTH	High	10-12

Buildings underlined in red are represented in our photographs.

1936	PRINCETON	High	?
	SPENCER	High, addition	?
	SWAMPSCOTT	High	?
	WEST BOYLSTON	High	?
	BOSTON	Phillips Brooks Intermediate	7-9
	BOSTON	Dudley Intermediate	7-9
	BOSTON	Robert G. Shaw Intermediate	7-9
	BOSTON	Roslindale High	9-12
	WELLESLEY	Annie F. Warren Junior High	7-9
	MILTON	High, addition	9-12
	BOSTON	Old English High, addition	9-12
1937	N. BRIDGEWATER	High, addition	7-12
	FITCHBURG	High	9-12
	MARION	High	?
	LITTLETON	Elementary and High	1-12
	NORWELL	Elementary and High	1-12
	SOMERSET	High	9-12
	UXBRIDGE	High	9-12

Buildings underlined in red are represented in our photographs.

The list of schools erected from 1918 to 1933 is probably as near accurate and complete as it is possible to obtain. Since 1933 the list may not be complete, for replies have not come from all to whom they were sent. But it is enough to show the present trend. The depression had its greatest effect during the years 1932 and 1933, so that fewer schools were projected in those years and very few were built in 1933 and 1934. But with the adoption of the policy of federal aid for public building projects, the building of needed high schools was encouraged. In fact, some towns, which did not actually need a high school, took advantage of the opportunity to get one at less local expense than it seemed likely would ever come their way again. Moreover, with the unemployment situation becoming more and more acute, many pupils who would have, in ordinary times, left school to go to work, found it much more advisable to stay in school, thus requiring more room for them.

In the list of schools erected since 1918, it will be noticed that the practice with regard to provisions for junior high schools varies very

widely. There seems to be no standard as to what grades are to be included. And the junior high school sometimes occupies a building with the earlier grades, sometimes with the senior high school, sometimes with both, and some times a building all of its own.

The junior high school is departmentalized, as is the senior high school. It specializes in giving exploratory courses, especially in subjects requiring work with the hands. Hence it requires shops, drawing rooms, laboratories, and (often) gymnasiums and little theatres. Since it is the latest addition to our public school system, it not infrequently happens that the junior high school building is equipped with more modern features of school architecture and devises for the direction of learning than is the high school itself. And yet the junior high school has not taken the hold upon Massachusetts that it has on states further west. And the junior college is not to be found in the public school system of the State at all, unless we except the post-graduate year at Springfield which is sometimes called a junior college in that city. There are, however, a few private schools which have junior colleges.

The third question called for the names of high schools other than public, with the dates when their buildings were erected. The dates were so infrequently given that it has seemed best to disregard them in this report, and to supplement the information given by the superintendents by somewhat more accurate information from other sources. Sargent's Handbook of Private Schools and the Bulletin 1931 No.20 from the Office of Education in the United States Department of the Interior, were the sources used. It is possible that a very few of these may not be strictly of high school grade, for in at least one of them the students are not classied by years (Chauncey Hall School) but wherever it is known, the number of years devoted to high school studies, is noted.

High schools, other than public high schools, in Massachusetts.

ANDOVER	Abbott Academy	Nonsect	5
	Phillips Academy	Nonsect	5
	Brooks School		?
ARLINGTON	Marycliffe Academy	R C	?
ASHBURNHAM	Cushing Academy	Nonsect	4
AUBURNDALE	Lasell Junior College	Nonsect	?
BELMONT	Belmont Hill School		?
BEVERLY	Kendall Hall		?
	North Country Day School		?
BILLERICA	Mitchell School		?
BOSTON	Academy of Notre Dame	R C	4
	Chauncey Hall School	Nonsect	[illegible]
	Huntington School for Boys	Nonsect	4
	May School	Nosect	5
	Mount St. Joseph Academy	R C	4
	Nazareth High School	R C	4
	Our Lady of Perpetual Help	R C	4
	Roxbury Latin School	Nonsect	6
	St. Patrick's High School	R C	5
	SS. Peter and Paul's High	R C	4
	The Windsor School	Nonsect	4
	Brimmer School		?
	Chamberlayne School		?
	Erskine School		?
	Farm and Trade School		?
	Katherine Gibbs School		?
	Lee School		?
BRAINTREE	Thayer Academy 1876		?
BRADFORD	Bradford Junior College		
BREWSTER	Sea Pines School		
BROCKTON	St. Patrick's High School	R C	
BROOKLINE	Choate School	Nonsect	4
	Beaver Country Day School	Nonsect	6
	Rivers School		
	St. Ardan's and St.Mary's	R C	
CHELSEA	St. Rose High School 1927	R C	6
CAMBRIDGE	Browne and Nichols		
	Buckingham School		
	Shady Hill School		
CONCORD	Middlesex School	Nonsect	6
	Concord Academy		
CHICOPEE	Holy Name High School	R C	
DANVERS	St.John's Preparatory School	R C	4
DEERFIELD	Deerfield Academy	Nonsect	4
	Eaglebrook School		
DORCHESTER	St.Margaret's High School	R C	3
EASTHAMPTON	Williston Academy	Nonsect	4
EAST NORTHFIELD	Northfield Seminary	Nonsect	4
FRANKLIN	Dean Academy 1873	Nonsect	4

GREAT BARRINGTON	Barrington School		
	Monterey School		
GREENFIELD	Stoneleigh-Prospect Hall		
GROTON	Groton School	P.E.	6
	Lawrence Academy		
HINGHAM	Derby Academy 1781		
HATFIELD	Smith Academy (now being rented by the town)		
HAVERHILL	St.James High School	R C	4
HOLYOKE	St. Jerome's High School	R C	4
	Sacred Heart	R C	
	Holy Rosary	R C	
LAWRENCE	St. Mary's High School	R C	4
LENOX	Lenox School		
LOWELL	Rogers Hall School		
	Immaculate Conception High School	R C	4
	Keith Academy	R C	4
LYNN	St. Mary's High Schools	R C	
MARION	Tabor Academy	Nonsect	4
MALDEN	Girls' Catholic High School	R C	4
MARLBORO	St. Ann's Academy	R C	4
MERRIMAC	Whittier School		
MILFORD	St. Mary's High School 1924	R C	4
MILTON	Milton Academy	Nonsect	6
	Jeanne d'Arc School		
MONSON	Monson Academy		
MOUNT HERMON	Mount Hermon School	Nonsect	4
NATICK	Walnut Hill School	Nonsect	5
NEW BEDFORD	Holy Family High School	R C	4
NEWTON	Our Lady's High School	R C	4
	The Misses Allen School		
	Country Day School		
	Damon Hall		
	Mt. Ida School		
NEW BEDFORD	Friends Academy		
NORTHAMPTON	Mary A. Burnham School		
	Northampton School for Girls 1920		
NORTON	House in the Pines		
NORTH ADAMS	St. Joseph's High School	R C	4
NORTHAMPTON	St.Michael's High School 1928	RC	
PEABODY	St. John's High School 1916	R C	
PITTSFIELD	Miss Hall's School	Nonsect	5
	St. Joseph's High School	R C	4
QUINCY	Woodward Institute		
	Eastern Nazarene Preparatory		
REVERE	Immaculate Conception High	R C	4
ROXBURY	St. Patrick's High School	R C	5
SALEM	Ste. Chretienne School	R C	
	St. Mary's	R C	
	St. Joseph's	R C	
	St. James	R C	
SHEFFIELD	Berkshire School		
SOMERVILLE	St. Joseph's High School	R C	4

SOUTHBORO	St. Marks School	P. E.	6
SOUTH BYFIELD	Governor Dummer Academy	Nonsect	
SOUTH BRAINTREE	Thayer Academy	Nonsect	5
SPRINGFIELD	Cathedral High School	R C	4
	Miss Barker's School		
	MacDuffie School		
STONEHAM	Small commercial parochial high school in private house.		
SUDBURY	Whiting Hall		
WALTHAM	St. Mary's High School	R C	4
	Mt. Prospect School		
	Waltham School		
	St. Charles' High School	R C	
WELLESLEY	Dana Hall School 1891	Nonsect	4
	Academy of the Assumption	R C	
	Beacon School		
WESTFIELD	St. Mary's High School	R C	4
WEBSTER	St.Louis' High School	R C	
WEST SOMERVILLE	St. Clement High School	R C	4
WEST BRIDGEWATER	Howard Seminary		
WESTON	The Cambridge School		
WILBRAHAM	Wilbraham Academy		
WILLIAMSTOWN	Northside School		
WINCHESTER	Parochial	R C	
WOBURN	St. Charles' High School	R C	4
WORCESTER	Assumption College	R C	4
	St. John's High School	R C	4
	St. Peter's High School	R C	4
	Worcester Academy	Nonsect	4
	Bancroft School		

It is assumed that most of the schools not otherwise designated are unsectarian and offer four years of high school work. The type of architecture of these buildings varies widely. Some of the smaller private schools occupy buildings which were originally private residences. But in the main, the schools whose buildings were erected with the purpose in view which they serve, are patterned in general style and arrangement after the best type of public school architecture in vogue at the time of their erection.

The fourth question had to do with the special features of secondary school buildings, and was very interesting in its results. Very few superintendents neglected to answer this rather carefully.

FEATURE	INCLUDED WHEN BUILDING WAS ERECTED	ADDED SINCE THAT TIME
STUDY HALL	78	6
ASSEMBLY HALL	88	10
LIBRARY	80	7
SCIENCE LABORATORY	124	7
WOODWORKING SHOP	64	16
MACHINE SHOP	21	1
GYMNASIUM	69	18
SHOWER BATHS	67	17
PRACTICAL STAGE EQUIPMENT	52	8
CAFETERIA	74	13
PRINT SHOP	26	1
SWIMMING POOL	0	2
MOVIE BOOTH	43	3
RADIO RECEPTION	91	11
MICROPHONE TRANSMITTER	5	3
DISPENSARY	22	2

Eight use the gymnasium as an assembly hall, and two use the assembly hall as a study hall as well. One reported that the library was in the assembly hall.

The word "dispensary" seemed to bother some of the superintendents. One wrote, "What is that?", and another noted,"Disavow!", while a third

denied having such a thing but said that as a unique feature of his school they had a dentist's office.

Several interjected disparaging remarks concerning some of these features, saying, "Yes, we have one, but it is not much good", or "Small and inadequate". These remarks were especially directed at the cafeteria and the practical stage equipment for drama. One said of the latter, "We use a nearby theatre when we present a drama".

We have tried to place these features on the preceding page in about the order of their appearance in our high school buildings of Massachusetts. It will be remembered that the study hall was THE feature of the older high schools, and recitation rooms were a much later development. The assembly hall was an inevitable essential of the high school, nearly always occupying the third floor of the earlier buildings. In Horace Mann's model plan, a library was recommended, and the shelf of books behind the master's desk served that purpose even before the first high school came into existence. The science laboratory is almost as old, and was the first room devoted to special purposes in the oldest of our high school or academy buildings. Hence we may reasonably expect to find these features in most high school buildings of today.

The gymnasium, with its shower baths, seems to have found a firm place in our secondary school buildings, although it is to be noted that three more schools have gymnasiums than have showers. The cafeteria and the manual training shop are also features which seem to have come to stay.

Other features than those listed were reported by some schools. Two mention tennis courts. One boasts an auditorium seating 1492 people, which is perhaps intended for other use than that of the high school alone. Two or three have "little theatres" for the use of the English department. One

reports that its gymnasium and auditorium may be thrown together. Another speaks of the twon clock as a part of the high school equipment. Another makes mention of the household arts model apartment. Still others are proud of their music rooms, their band and orchestra rooms, or their broadcasting studio. One makes special mention of "gang showers". None of these things are unique, for many high schools possess them, but did not think them worthy of special mention. The Somerville High School has a bank operated by the commercial department which looks like a regular bank, acts like one, and has all the equipment and officers of one.

The tendency is to include in the building and equipment of a high school, everything the town can afford to make its boys and girls the very best citizens possible. What the home or other social agency has previously been expected to do for them, is now being undertaken more and more by the high school. The health of each pupil is carefully looked after by doctor, nurse, dentist and dietician. The mental well-being is looked into by the psychiatrist and the intelligence tester. Cleanliness is assured by the gymnasium, the bath director and the laundry. Habits of thrift are inculcated by the school bank. Courses in ethics are conducive to improved manners and morals, and in vocational civics assist in selecting a life work. Home making is taught, together with the art of motherhood. And all these things, with others not mentioned, require more and more elaborate buildings. We have come a long way since the miserable shack of only one hundred years ago.

And yet, despite the progress made, there are still standing a considerable number of buildings which were used as secondary schools a century ago, and some of them even earlier. There is no question but that many more equally old buildings, have not been reported. As has been mentioned, the building used for the Boston English High School in 1824 is still in active use.

The fifth question called for reports on buildings occupied for secondary school purposes over a hundred years ago and still standing. They are:

ASHFIELD	A building now used as a dwelling.
CONCORD	Yes
DALTON	The old building that was burned a year ago (1933?)
DEERFIELD	A building now used as a museum was erected over a century ago for the Deerfield Academy.
DUXBURY	The old academy building was erected in 1843.
FALMOUTH	The old Lawrence Academy building of 1834 is now used as the American Legion hall.
FRAMINGHAM	The historical society now uses the old stone building of the original academy.
GREENFIELD	Yes, two or three! (This same man gave 1492 as the date of his junior high school building, and asked of the dispensary, "what is that?".)
HANOVER	Yes, but not in school use at present.
HINGHAM	A building of the Derby Academy, erected in 1781.
IPSWICH	A building now used as a stable.
LEXINGTON	The present Masonic Hall was built for an academy in 1822 and adapted for the first normal school of Massachusetts in 1839
MARBLEHEAD	Yes,
NEW SALEM	We have one built in 1838.
SALEM	The Oliver building dates from 1818.
SANDWICH	Yes.
SAUGUS	The building of the first "female seminary" in America, where Mary Lyon was educated, is now used as a dwelling.
SHELBURNE	Yes.
SHREWSBURY	Yes.
TOPSFIELD	Yes.
WELLESLEY	The "North Grammar School" was erected in 1790.
WAKEFIELD	Yes.
WOBURN	The old Warren Academy building, probably in 1830, now used for a Free Industrial Summer School.

It is to be feared than not all of these schools were "secondary", but probably most of them were. The list, of course, is far from complete, but it at least indicates where one may see some very old school buildings.

The sixth and final question, calls for the date when the first building of any kind, for secondary school purposes, was erected in that town. Here it is evident that our superintendents are forward-looking, rather than backward-looking men, for few of them are sufficiently well acquainted with the history of the schools over which they preside, to give dates earlier than the high school period. Here are the answers received:

ADAMS	1868
ADAMS	1921
AMESBURY	Academy built 1865, afterward burned.
ARLINGTON	About 1867
ASHFIELD	1815
AYER	1871
BELMONT	1897
BEVERLY	1874?
BILLERICA	Howe School 1852; Pemberton School probably earlier.
BRAINTREE	1893, for high school and grade
BRIDGEWATER	17[illegible]
BRIMFIELD	1856, an academy
CLINTON	1862
BROOKFIELD	1883
BROOKLINE	1843, used as town hall; building erected 1856
CHELSEA	1830
CHICOPEE	Old high school, still used as elementary, 1838
DALTON	1889, used town hall; building erected 1892
DANVERS	About 1850, now used as a dwelling
DOUGLAS	1898
EASTHAMPTON	1865
EVERETT	First High School in 1893
FALMOUTH	1834, for Lawrence Academy, now used as Legion Hall.
FRAMINGHAM	"I don't know, but a long time ago.
FRANKLIN	1871
GARDNER	1866, a high school.
GREENFIELD	About 1830
HATFIELD	1879
HINGHAM	1761
HOLDEN	First high school started 1880, on second floor of grammar school building.
HOLYOKE	1861
HOPEDALE	Old high school (now unused) built about 1880.
HOPKINTON	Academy, approximately 1800.
HUNTINGTON	1904 (date of present high school)
KINGSTON	1869
LEOMINSTER	1865
LEXINGTON	1822, for an academy.
LUDLOW	High school organized in 1895 by the Ludlow Mfg Co., in building erected as a grade school. (See p. 76)
MARBLEHEAD	No record back of 1874. There was a high school then.
MARLBORO	1858
MEDFORD	1853
MENDON	1840, combination high school and town hall.
MILLBURY	1852?
MILFORD	Probably 75 years ago, burned long since.
NEW BEDFORD	1926
NEBURYPORT	1848, present high school is old Putnam Free School which city purchased for use as a high school.
NEW MARLBORO	1874
NEW SALEM	1795, an academy

NORTON	1905
PEABODY	1850-1854
PEPPERELL	Academy, date uncertain
PITTSFIELD	1851
PLAINVILLE	About 1900
PRINCETON	About 1840
READING	Previous to erection of present high school, 1906, its classes met on second floor of old Center School.
REVERE	1900
RUTLAND	About 75 years ago, now being used as a post office on a different site.
SALEM	Fisk Classical School for Boys 1837
SANDWICH	Paul Wing private school, about 1800
SAUGUS	Before 1906, town hall was used, and before that the top floor of the Roby School
SCITUATE	1849, probable
SHELBURNE	1852
SOMERSET	Present high school erected 1886 as town hall.
SOMERVILLE	Latin school erected 1852
STONEHAM	March 1, 1847, voted in town meeting, "There shall be a high school kept near the Town House, for use of whole town, and taught by a man six month in year".
STOUGHTON	1818 private school continued until 1872, first high school in spring of 1865.
TOPSFIELD	1828
SWANSEA	1927
TIGHBURY	About 1885
WAKEFIELD	1829 South Reading Academy.
WEBSTER	About Civil War period.
WARE	About 1829
WESTBOROUGH	High school established about 60 years ago and an existing building enlarged for its use.
WINTHROP	About 1884.
WOBURN	Academy 1830, first public high school 1855, now used as all of elementary, formerly the high school.
YARMOUTH	1857

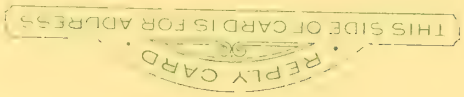
On pages 18 and 22, we have mademention of many secondary schools which existed in the period before high schools and before the earliest dates in the list above, but perhaps many of these did not have buildings erected for them, or our informants did not know of them. We can, however, be very grateful for the information they did give us, which is, perhaps sufficient for our purpose. This questionnaire brought replies from 82.8 % of the superintendents to whom it was sent, which is considerably better than the average fate of such questionnaires.

XI. THE OUTWARD APPEARANCE OF OUR PRESENT PUBLIC HIGH SCHOOLS.

Not satisfied with the information gathered by the never very satisfactory questionnaire method, the writer determined to present actual photographs of a sufficient number of public high schools to show the general trend of architecture during the past half century, and especially in recent years.

Having already visited personally fifty-eight of the two hundred and fifty-five high schools, his first impulse was to buy a small camera and take snap-shots of them all. Upon reflection, however, this method did not seem likely to yield results satisfactory enough to repay the time, effort, and expense it would involve. The desired purpose could be better served by a collection of a smaller number of better photographs by the professional photographers of representative buildings.

Three methods were employed in securing such photographs and the data concerning the dates when the buildings were erected. First, personal visits were made to and interviews held with most of the architects responsible for designing the buildings in question, and with such men as Payson Smith who for twenty years as executive head of the Massachusetts Board of Education has inspired and watched over the efforts of towns to improve their school housing facilities, Burr F. Jones of the same Department who recorded and published the official list of school houses erected from 1918 to 1933, and John Ritchie who has been responsible for most of the professional articles concerning schoolhouse architecture in Massachusetts which have appeared in the past quarter century, particularly those designed by Frank Irving Cooper, dean of schoolhouse architects, and William W. Drummey, Superintendent of Schoolhouse Construction for the City of Boston. Second, solicitation through



FRANK M. GRACEY,

STATE TEACHERS COLLEGE

CHARLESTON, ILLINOIS

Charleston, Illinois

In order to complete my dissertation on THE HISTORY OF SECONDARY SCHOOL ARCHITECTURE IN MASSACHUSETTS, it becomes necessary for me to secure a picture of every building used for secondary school purposes in the State. This will include high schools, junior high schools, academies, seminaries, and Latin Grammar schools—public, private, or parochial—past, present, and (so far as possible) future. Cuts, photographs, or architects' drawings. I shall greatly appreciate any aid you can give me in making this collection complete, by the gift, loan or purchase of such pictures. Will you kindly use the attached card to acquaint me with what I may expect from you?

Gratefully yours,

Frank M. Gracey

Dear Mr. Gracey:

We have pictures of the following secondary schools

_____ _____

_____ _____

_____ _____

.... which we can give you and are forwarding under separate cover
.... which we will lend you upon your promise to return in good order
.... copies of which can be purchased at .... apiece.

We have written the names of the buildings, the date of their erection and the names of the architects who designed them, on the back of each print. We have also marked on it that one of these letters

I.L.U.T.H.E. which the plan most nearly resembles.

Cordially yours,

_____

Address _____

the mails by means of the printed return post card, a copy of which is attached, followed by personal letter where that seemed called for. Third, by a careful search of such magazines as The School Board Journal, and the Architectural Record.

The architects consulted, either in person or by mail, are:

Coolidge, Shepley, Bullfinch and Abbott	1 Court Street	Boston
Frank Irving Cooper Corporation	47 Winter Street	Boston
Richard B. Derby	3 Joy Street	Boston
Ralph H. Doane	60 Batterymarch	Boston
Edwin Sherrill Dodge	148 State Street	Boston
M. A. Dyer Company	1 Beacon Street	Boston
Kilham, Hopkins and Greeley	126 Newbury Street	Boston
McLaughlin and Burr	88 Tremont Street	Boston
W. H. McLean	88 Tremont Street	Boston
H. B. S. Prescott	12 Pearl Street	Boston
James H. Ritchie and Associates	100 Arlington St.	Boston
Sturgis Associates	120 Boylston St.	Boston
J. W. Beal and Sons	185 Devonshire St	Boston
McGuinness and Walsh	Statler Building	Boston
Leland and Larson	Statler Building	Boston
Alden, Parker, Clinch and Crimp	177 State Street	Boston
Ames and Dodge	148 State Street	Boston
Andrews, Jones, Biscoe and Whittimore	50 Congress St.	Boston
H. H. Atwood	61 Alban Street	Boston
R. P. Bellows	8 Park Street	Boston
Blackall, Clapp, Whitemore and Clark	31 West Street	Boston
Collidge and Carlson	89 State Street	Boston
Cram and Ferguson	248 Boylston St.	Boston
G. E. Eldridge	234 Clarendon St.	Boston
Frohman, Robb and Little	250 Stuart Street	Boston
J. M. Gray	175 High Street	Boston
C. R. Greco	11 Beacon Street	Boston
Harper and West	131 State Street	Boston
J. P. Heffernon	131 State Street	Boston
R. C. Henry	11 Beacon Street	Boston
Hutchins and French	11 Beacon Street	Boston
Jackson and Jackson	44 School Street	Boston
E. I. Leeds	263 Harrison Ave.	Boston
Putnam and Cox	114 State Street	Boston
Isador Richmond	248 Boylston St.	Boston
L. W. Ross	9 Park Street	Boston
Richard Shaw	25 Huntington Ave	Boston
G. H. Sidebottom	137 Newbury St.	Boston
Matthew Sullivan	100 Boylston St.	Boston
Oscar A. Thayer	171 Newbury St.	Boston
Wadsworth and Smith	11 Beacon Street	Boston
Stanley B. Parker	53 Newbury Street	Boston

EGYPT	E. I. Wilson	Tilden Road
FALL RIVER	E. M. Corbett	49 Purchase Street
FALL RIVER	Leary Fallows	131 Stewart Street
FITCHBURG	S. W. Haynes and Associates	Main Street
GREENFIELD	Bernhard Dirks	278 Main Street
HAVERHILL	Morse, Dickinson and Goodwin	25 Washington Square
LAWRENCE	James E. Allen	351 Essex Street
LEOMINSTER	H. E. Mason	15 Prospect Street
LOWELL	P. F. Gilbert	53 Central Street
LOWELL	H. L. Rourke	45 Merrimack Street
LYNN	G. A. Cornet	14 Central Avenue
MARBLEHEAD	W. H. Quiner	
NEW BEDFORD	Brown and Poole	688 Pleasant Street
PITTSFIELD	Harding and Seaver	126 Fenn Street
SHELBURNE FALLS	A. E. Eldridge	119 Main Street
SOMERSET	I. J. Almy	Read Street
SPRINGFIELD	D. R. Baribault	166 Buckingham Street
SPRINGFIELD	Gardner and King	33 Lyman Street
SPRINGFIELD	[illegible]	49 [illegible] Road
WELLESLEY	[illegible] Brainerd	10 Upland Road
WESTFIELD	W. B. Harding	6 Main Street
WESTFIELD	R. B. Sizer	12 Elm Street
WEST SPRINGFIELD	P. B. Johnson	35 Memorial Avenue
WORCESTER	L. [illegible] Briggs Company	314 Main Street
WORCESTER	T. J. Brodeur	16 Cutler Street
WORCESTER	[illegible] T. Chapin	311 Main Street
WORCESTER	F. H. Cutting	29 Pearl Street
WORCESTER	Frost, Chamberlain and Edwards	Slater Building
WORCESTER	H. L. Meacham Associates	120 Front Street
WORCESTER	O. E. Nault and Sons	48 Hamilton Street
WORCESTER	Jasper Rustigian	16 Norwich Street
[illegible]	O'Connell and Shaw	25 Huntington Avenue

(From THE AMERICAN SCHOOL AND UNIVERSITY 1936 Yearbook, 470 Fourth Ave. NY)

Wherever it was possible to contact an architect personally, he was usually found to be willing to give of his time to the answering of questions and the suggesting of other possible sources and often donated pictures of buildings. Mr. Kilham, of Kilham, Hopkins and Greeley, Mr. McLauglin of McLaughlin and Burr, and Mr. Ritchie of the Frank Irving Cooper Corporation, were particularly liberal and helpful in this respect. As was to be expected, not quite so good results were obtain through correspondence.

The postcard request was sent to two hundred and fifty-five high school principals, to two hundred and twenty-eight junior high school principals, to the two hundred and five school superintendents, as well as to the sixty-six architects listed above.

Three other possible sources were utilized. First of these was the list of secretaries of chambers of commerce, as follows:

[illegible]	[illegible] Main St	Miss Elizabeth M. Stephan
Amherst	Business Assn.	[illegible]
[illegible]	454 Mass. Ave.	Miss Anna B. Callahan
Athol	[illegible]	[illegible]
Attleboro		Claude C. Smith
[illegible]	Bd. of Trade	[illegible]
Belmont	8 Trapelo Rd.	Merle Johnson
Beverly	242 Cabot St.	Neiland J. Douglas
[illegible]		W. Owen Faulkner
Brockton	66 Legion Pkway	Joseph R. Reilley
Brookline	306 Harvard St	Wesley B. Foss
Buzzards Bay		Thomas W. Wright
[illegible]	238 Main St.	Jeremiah F. Downey
Canton		Norman Muzzy
[illegible]		Hyman Kaplan
Chicopee	38 Center St.	James E. Hafey
[illegible]	198 High St.	C. Newell Felton
Concord	43 Main St.	Fred T. Boyd
[illegible]		[illegible]
[illegible]	50 East St.	Oswald Hornsby
Dorchester	1441 Dorchester Ave	John J. Daily
East Boston	94 Meridian St.	Charles E. Patterson
Easton		Edward M. Carr
Fall River	No. Main St.	Frank W. Dunham
[illegible]		Granville Beale
Fitchburg	560 Maine St	Willis B. Morey
[illegible]	109 Concord St.	John Paul
Franklin		Louis E. Johnson
Gardner	301 Central St.	Samuel S. Lord
Gloucester		Lawrence J. Hart
Greenfield		Miss Ellen W. Long
Haverhill	[illegible]	George H. Croston
[illegible]	School St.	Earl J. McLean
Holyoke		Conrad Hemond
Hudson		Ralph S. Sullivan
Hyannis		A. Milan O'Neill
Hyde Park	31 Pleasant St.	Warren W. Petrie
Indian Orchard	156 1/2 Main St.	Oscar E. Gundreau
Jamaica Plain	685 Centre St.	Dr. Francis H. Roach
[illegible]	Bay State Bank Bldg	John J. O'Rourke

Lee		R. L. Spofford
Leominster		R. S. Appleton
Lexington		George E. Smith
Lowell	100 Merrimac St.	Andrew A. McCarthy
Lynn	112 Exchange St.	Fred M. Seavey
Malden	6 Pleasant St.	[illegible]
Marlborough		George C. Clarke
Marshfield		Channing L. Wentworth
Oak Bluffs		W. C. Ripley
Medfield		L. W. Wheeeler
Medford	11 Riverside Ave.	Mrs. Anna M. Burke
Melrose		Matthew F. Divver
Methuen		Lawrence R. Stowers
Middleboro	So. Main St.,	Luke F. Kelley
Milford		Mrs. Deletta Oldfield
Miller's Falls		John A. Taggart
Needham	181 Harris Ave.	Arnold Mackintosh
New Bedford		Alfred R. Thackeray
Newburyport	12 Pleasant St.	Miss D. Pearl White
Newton	277 Washington St.	Rupert C. Thompson
North Adams		Miss Margaret Tyrrell
North Andover		Charles Hinxman
Norton		[illegible]
Onset		Emil L. Loeb
Norwood	16 Everett Ave.	Daniel F. Slattery
Orange		Michael H. Roche
Orleans		Harry F. Childs
Palmer		M. William Holden
Peabody		Wesley P. Redman
Pittsfield	P. O. Box 1049	William T. Barbre
Plymouth		Jeremiah J. Lahey
Provincetown		James R. Turner
Quincy	1555 Hancock St.	E. J. MacEwan
Quincy Point	31 Burns Ave.	Michael J. Mahoney
Randolph		Walter W. Woodward
Reading		Walter M. Fowler
Revere	150 Beach St.	Collin F. Chisholm
Rockland	111 Payson Ave.	R. Stewart Esteh
Rockport		Miss Virginia H. Grimes
Roslindale	20 Belgrade Ave.	Thomas B. Fitspatrick
Roxbury	144 Dudley St.	Herbert Dayton
Salem		Lewis W. Newell
Scituate		Lester D. Hobson
Somerville	7 Davis Sq.	Earle H. Eacker
South Boston	12 Sanson St.	Charles T. Brooks
Southbridge	255 Main St.	Allen S. Richmond
Springfield		Frederick J. Hillman
Stoughton	567 Park St.	Claude W. Darling
Taunton		Frank L. Locklin
Wakefield		Francis J. Smith
Walpole		Charles A. George
Waltham		Earl J. Arnold

Ware		Emile F. St.Onge
Wareham		Bion C. Merry
Webster		O. M. Piehler
Westboro		Rufus M. Shaw
Westfield		Percy N. Hall
West Roxbury	21 Farmington Rd.	Mrs. Elgina I. Judge
West Springfield		Lawrence D. Brady
Westwood		Sylvester Wells
East Weymouth		John F. Ahern
Wilmington	Postmaster	Francis J. Correira
Winchendon		Charles E. Weeks
Winchester		Ernest H. Butterworth
Winthrop	71 Jefferson St.	Russell A. Lang
Worcester		Roscoe H. Goddard

It had been supposed that Chambers of Commerce would be interested in seeing that their town was represented by a picture of its principal public building in any collection of such pictures, but the results of requests sent to their secretaries was almost nil. Those who replied at all, merely suggested writing to the superintendent of schools - which had already been done.

The second source of possible information to be consulted was the list of Historical Societies. Massachusetts is wealthy in history and also in historical societies. Certainly these should possess information about and pictures of old school buildings, academies and Latin grammar schools. So requests were sent to the following societies:

Andover	Arlington	Ashland	Bedford
Beverly	Billerica	Bostonian Soc.	Brookline
Cambridge	Canton	Chelsea(Cary Assn)	Clinton
Cohasset	Concord	Danvers	Dedham
Dorchester	Dover	Dracut	Essex Inst.
Fitchburg	Foxboro	Framingham	Greenfield
Groton	Halifax	Haverhill	Hingham
H. Soc. Old Newbury	Holliston	Hudson	Hyde Park
Ipswich	Leominster	Lexington	Littleton
Lowell	Lynn	Malden	Marblehead
Marshfield	Massachusetts	Medford	Medfield
Medway	Milton	Nantucket	Narragansett
Needham	N.E.Hist-Genl Soc	Newton	No.Andover
Northampton	Norwood	Old Bridgewater	Old Colony
Old Dartmouth	Old South(Boston)	Peabody	Petersham
Pilgrim (Plymouth)	Quincy	Rowley	Roxbury
Royall Hs.(Medford)	Rumford(Woburn)	Scituate	Shepard(Wenham)

Sherborn	Soc.Pres.N.E.Ant.	Somerville	So.Natick
Stoneham	Swampscott	Swampscott Hist.S.	Wakefield
Waltham	Watertown	Wellesley	Wenham
Westborough	Weymouth	Winthrop	Worcester

These requests shared about the same fate as those sent to the chambers of commerce. Haverhill, Weymouth and Lynn, made good contributions, but most of the others referred us to the superintendent of schools or else failed to reply at all.

The third souce of information tried was the local newspapers. Those appealed to were:

Amesbury	NEWS	1888	Amherst	RECORD	1845
Andover	TOWNSMAN	1887	Arlington	ADVOCATE	1872
Athol	CHRONICLE	1866	Attleboro	SUN	1889
Ayer	TURNERS PUBLIC SPIRIT 1868		Barre	GAZETTE	1834
Belchertown	SENTINEL	1915	Belmont	CITIZEN	1919
Beverly	TIMES	1893	Boston	PILOT	1829
Boston	POST	1891	Boston	TRANSCRIPT	1896
Braintree	OBSERVER	1870	Bridgewater	INDEPENDENT	1879
Brockton	ENTERPRISE	1869	Brookfield	UNION	1891
Brookline	CHRONICLE	1874	Cambridge	CHRONICLE	1846
Canton	JOURNAL	1876	Chatham	GAZETTE	1872
Chelsea	GAZETTE	1886	Chicopee	HARELD	1927
Clinton	COURANT	1846	Concord	JOURNAL	1928
Danvers	HERALD	1920	Dedham	TRANSCRIPT	1870
E. Bridgewater	JOURNAL	1926	Easton	BULLETIN	1888
E. Pepperell	FREE PRESS	1928	Edgartown	VINEYARD GAZETTE	1846
Everett	HERALD AND REPUBLICAN	1885	Fairhaven	STAR	1879
Fall River	HERALD NEWS	1877	Falmouth	ENTERPRISE	1894
Fitchburg	SENTINEL	1836	Foxboro	REPORTER	1894
Framingham	NEWS	1897	Franklin	SENTINEL	1878
Gardner	NEWS	1896	Gloucester	TIMES	1836
Great Barrington	BERKSHIRE COURIER	1834	Greenfield	GAZETTE AND COURIER	1792
Harwich	INDEPENDENT	1872	Haverhill	GAZETTE	1796
Hingham	JOURNAL	1827	Holbrook	TIMES	1885
Holyoke	TRANSCRIPT-TELEGRAM	1882	Hudson	NEWS-ENTERPRISE	1895
Hyannis	PATRIOT	1890	Hyde Park	GAZETTE-TIMES	1819
Ipswich	CHRONICLE	1872	Lawrence	SUN	1890
Lee	BERKSHIRE GLEANER	1857	Leicester	BANNER	1892
Leominster	ENTERPRISE	1873	Lexington	TIMES-MINUTE MAN	1871
Lowell	COURIER-CITIZEN	1845	Lynn	ITEM	1877
Malden	NEWS	1874	Manchester	CRICKET	1884
Mansfield	NEWS	1873	Marblehead	[illegible]	1872
Marlboro	ENTERPRISE	1865	Medford	MERCURY	1879
Melrose	FREE PRESS	1881	Methuen	TRANSCRIPT	1876
Middleboro	GAZETTE	1852	Milford	GAZETTE	1882

Millbury	JOURNAL	1855	Milton	RECORD	1904
Nantucket	INQUIRER & MIRROR	1821	Mattapoisett	BULLETIN	1888
Needham	CHRONICLE	1874	New Bedford	[illegible]	1887
Newburyport	NEWS	1888	Newton	JOURNAL	1866
Newton Center	TOWN CRIER	1898	North Adams	TRANSCRIPT	1845
Northampton	HAMPSHIRE GAZETTE	1786	No. Attleboro	CHRONICLE	1870
No. Billerica	NEWS		Norwood	MESSENGER	1893
Orange	ENTERPRISE & JOURNAL	1872	Palmer	JOURNAL-REGISTER	1880
Peabody	ENTERPRISE	1912	Pittsfield	BERKSHIRE EAGLE	1705
Plymouth	OLD COLONY MEMORIAL	1822	Provincetown	ADVOCATE	1869
Quincy	PATRIOT- LEDGER	1897	Randolph	SENTINEL-NEWS	1909
Reading	CHRONICLE	1870	Revere	JOURNAL	1901
Rockland	STANDARD	1854	Roxbury	GAZETTE	1861
Salem	NEWS	1880	Sandwich	INDEPENDENT	1890
Saugus	HERALD	1887	Shirley	ADVOCATE	1881
Somerville	JOURNAL	1870	Southbridge	PRESS	1891
Spencer	LEADER	1891	Springfield	REPUBLICAN	1864
Stoneham	INDEPENDENT	1860	Stoughton	NEWS-SENTINEL	1861
Taunton	GAZETTE	1848	Townsend	TIMES	1922
Turners Falls	ADVERTISER	1922	Uxbridge	TIMES	1922
Wakefield	ITEM	1894	Walpole	TIMES	1917
Waltham	NEWS-TRIBUNE	1865	Ware	WARE RIVER NEWS	1887
Wareham	COURIER	1898	Watertown	TRIBUNE-[illegible]	1879
Webster	TIMES	1923	Wellesley	TOWNSMAN	1906
Westboro	CHRONOTYPE	1864	Weymouth	GAZETTE & TRANSCRIPT	1867
Whitman	TIMES	1872	Wilmington	NEWS	1926
Winchendon	COURIER	1878	Winchester	STAR	1880
Winthrop	SUN	1880	Woburn	TIMES	1901
Worcester	GAZETTE	1801	Yarmouth Port	YARMOUTH REGISTER	1856

Where more than one newspaper was published in a town the oldest was the one selected for the request.

The requests sent to newspaper editors seemed, on the face of it, a very happy idea. Surely they would not only have a local pride which would make them wish to have their town represented in our history, but the chances seemed extremely good that they would have cuts of their high schools, especially if the high school had been erected and dedicated since the paper had been established. The dedication of a new high school building is too important an event not to be celebrated by a picture in the local newspaper. But the postage spent on letters to newspapers might as well have been used for other purposes for it was practically a dead loss. Without doubt, a personal call at their offices would have been more successful, but under

the circumstances that was of course, out of the question.

Having then, written to all the superintendents, high school principals, junior high school principals, chambers of commerce, historical societies, newspaper editors - there remained two other expedients; the back files of magazines like the School Board Journal, and the art supervisors. Since Massachusetts is one state where art supervisors are likely to be found in any town large enough to have a high school and in some towns that are not, and since the writer is an art teacher and might therefore appeal on the grounds of fraternity and as a fellow-alumnus of the school from which most of the Massachusetts art supervisors are graduated, the chances of securing cooperation from that source seemed fairly good. So letters were written to the art supervisors of towns from which pictures were particularly desired.

From the nine sources so far enumerated, the combined results have been more than satisfactory. Perhaps not so many pictures have been received as could have been secured by personal visits, but as it was, more came than could be used. It was not considered neccessary to have a picture of <u>every</u> building, but it was desirable to have a large number from which to select those which could be considered to be representative.

From among the pictures submitted, those which are reproduced herewith are thought to be fairly representative of the two hundred and fifty-five high schools and the two hundred and twenty-eight junior high schools in the public school systems of Massachusetts, since they are samples of each changing period, and in recent years at least, of each year, and of each of the characteristic types of buildings erected. We shall therefore discuss a few of the buildings of which these are the types.

DATE	NAME OF SCHOOL	TYPE	PLATE	ROOF: Flat,Slant,Mansard,Gambril,Wide	ABOVE: Towers,Fleche,Dormers,Gable	MATERIAL: Brick,Stone,Wood	ENTRANCE: Pillars,Arch,Lintel	STORIES: 1,2,2-,3,4,4-,etc.	PLAN: I,L,H,T,E,U,Square	SPECIAL FEATURES
1812	Boston Latin Sch		I	S	F	S	L	3	S	3 doors, win above each
1827	Haverhill Academy		IX	S	F	B	A	2	S	Arched win, small panes
1843	Duxbury, Partridge	Acad	IX	S		W	P	1	S	Doric, to match church
1856	Andover, Punchard	FS	IX	S	F	W	P	2	T	Porches in angles
1865	Boston Latin Sch		I	S		B	L	3-	S	Slight gable
1870	No.Adams, Drury	Acad	IX	M	T	B	A	4	T	Mansard tower. 3-st ell
1870	Boston, Girls	HS	XII	F		B	A	4-	S	Some win paired
1871	Andover, Punchard	FS	IX	S	F	B	P	2	T	Porches in angles
1871	Worcester	HS	XI	M	T	B	T	3-	S	Spire, entr and corners
1873	Groton, Eliot and	HS	II	M	T	B	L	3	S	Entr from cor porches
1875	W Bridgewater	HS	X	M	T	B	P	4-	S	Gables, dormers br roof
1880	Boston, Eng High &	LS	I	S	D	B	A	3-	S	Siamese twin building
1882	Hudson	HS	XXIII	S	D	B	L	3-	S	Windows in threes
1887	Warren	HS	XI	S	T	B	A	3-	L	Round tower, cone top
1888	Gloucester	HS	XI	S	T	B	A	3-	S	Many arches, dor, attic
1890	Northampton	JHS	XII	S		B	P	2-	S	Arch win, gable.
1891	Chelsea	HS	XXIII	S	T	W	P	3-	H	Oct tower with gambril
1892	Plymouth	HS	XVIII	S	F	B	G	2	E	Recess entr at corners
1893	Malden	HS	XI	S		B	A	3-	E	Win spacing at top diff
1898	Jamaica Plain	HS	XV	S	T	B	A	2-	S	Sq towr with dor in it
1900	Canton	HS	XLV	F		B	L	2-	T	St course un 1, above 2
1901	South Boston	HS	XII	F	G	B	L	3-	E	Ionic col order over entr
1901	Dorchester, Girls	HS	XIV	S	D	B	A	3-	I	Upper win archd in prs
1904	Leominster	HS	XIII	F		B	L	3-	U	Prominent stone courses
1905	Northampton	HS	XII	S		B	A	2-	S	Porches. Arched windows
1906	Malden	HS	XIII	S		B	A	3	E	Annex, matching main bldg
1907	Boston, Girls lat	Sch	XIII	S	F	B	L	3	E	Entr betw three sections
1907	Charlestown	HS	XIII	F		B	L	3-	S	Recessed Doric Collos Ord
1907	Salem	HS	XIII	F		B	L	3-	E	Prominent stone courses
1908	Haverhill	HS	XIII	F	G	B	A	3-	U	Trip entr, col Ionic over
1913	Boston Pract Arts	HS	XIV	F		B	G	3-	L	Col Doric order over entr
1913	Worcester Comm #2	HS	XVI	F		B	L	4	S	Small gables along roof
1914	Boston, Commerce	HS	XVI	F		B	A	2-	U	Pylon entr like armory
1914	Wilmington	HS	XVI	F		B	A	2-	S	Recessed door
1914	Attleboro	HS	XXIII	F		B	P	3-	E	Yellow brick. Cor pillars
1915	No.Adams, Drury	HS	XVI	F	F	B	P	3-	E	2-story wings, terrace
1915	Dedham	HS	XVI	F		B	A	3-	I	Two entrances
1915	Milton	HS	XVII	F		B	L	3	E	Slant-roof gym attached
1916	Brockton, Girls	HS	XVII	F		B	P	4	U	Col Cor order, st basemnt
1916	Brockton, Winthrop	JHS	XVII	W		B	L	2-	T	Col Ionic ord, st basement

DATE	NAME OF SCHOOL	TYPE	PLATE	ROOF: Flat,Slant,Mansard,Cambril,Wide	ABOVE: Towers,Fleche,Dormers,Gable	MATERIAL: Brick,Stone,Wood	ENTRANCE: Pillars,Arch,Lintel	STORIES: 1,2,2-,3,3-,4 etc.	PLAN: I,L,H,T,E,U,Square	SPECIAL FEATURES
1916	Springfield, Comm	HS	XVII	F		B	A	3-	U	Bays beside entr section
1917	Lynn, Classical	HS	XVIII	F		B	P	3-	U	Yellow br, monumental ent
1917	Chicopee	HS	XVIII	F	T	B	A	3-	I	Turreted tower, accents
1917	Belmont	HS	XVIII	F		B	G	3-	U	Entrances on two sides
1917	Taunton	HS	XVIII	F		B	L	2-	O	Ent sec, hi recess door
1917	Plymouth	JHS	XX	S	G	B	A	2-	T	Entr section gabled
1917	Amesbury	HS	XIX	F		B	G	2-	U	St pilasters entr sectn
1918	Andover, Punchard	HS	XVIII	F		B	L	2-	H	Hi recess entr section
1919	Bridgewater	JHS	XIX	F		B	G	2-	T	Group win betw 2 entr
1919	Waltham, North	JHS	XLV	F		B	L	2-	H	St basement, stairs to entr
1920	Walpole, Bird	JHS	XLV	S	F	B	P	2-	E	Monumental entr section
1920	Framingham	JHS	XXIV	F		B	A	2-	H	Blank-front ent sectns
1921	Springfield, C St	JHS	XLVII	F		B	A	4	U	Stairs to entrance
1921	Longmeadow	JHS	XX	G	F	B	G	2	H	Gamb roof, 4 arched win
1922	Newton	JHS	XX	F		B	L	2-	U	Wings angle to main bldg
1922	Boston, Pub Lat	Sch	XXI	S	F	B	P	3	H	Wings flat, blank-front
1922	Peabody	HS	XXII	F		B	A	3-	E	Cent sec hi, 3 arches
1923	Waltham, South	JHS	XX	F		B	L	2-	L	Col Doric, 3 ent, wide st
1923	Bridgewater Acad		XV	S	G	W	P	2-	T	Cor pilasters all corners
1923	Wakefield	HS	XXI	W		B	P	3	E	Win very close together
1923	Templeton	HS	XXII	F		B	P	2-	G	Wide eaves, no end windws
1923	Palmer	HS	XXIII	F		B	P	2-	I	Col Corinthian, 4 cols
1923	Stoneham	HS	XXIV	S	G	B	L	2-	H	Flat-roof addition
1923	Worcester, Grftn	JHS	XXV	F		B	P	3	H	Col Ionic, 6 cols in entr
1923	Boston, Roosevelt	IS	XXVI	F		B	P	2-	L	Stone entr sections
1923	Marshfield	HS	XXVII	F		B		1-	L	Cent sec higher, bigger
1923	Southbridge	HS	XXVII	F		B	A	2-	L	Twin projectg entr sects
1923	Northborough	HS	XLV	F		B	A	2-	S	One-story proj st entr
1923	Everett	HS	XLV	F		B	A	3-	U	Triple entr, balconies
1923	Somerville, N E	JHS	XLVI	F		B	L	3	U	Blank-front ends, balcs
1923	Ashby, Lyman	HS	XLVI	S	G	B	A	2-	S	Twin gabled ent sec, dor
1923	Stoughton	HS	XLIX	F		B	G	2-	U	Mid-story entr sect blank
1923	Shrewsbury	HS	XLIX	F		B	P	2	U	Blank-front end sections
1924	Quincy	HS	XXI	F		B	P	3-	L	Trip-entr, Col Cor order
1924	Adams	JHS	XXII	F		B	A	3	L	Aud-sec resembles church
1924	Falmouth	JHS	XLV	F	F	B	A	1-	H	Cent sec sl roof, 3 entr
1924	Fitchburg, Brown	JHS	XLVIII	F		B	P	1-	I	Col Ionic order, steps
1924	Norwood	HS	XLIX	F		B	L	3	H	Blank-front end sec, 2 entr
1925	Dorchester, Boys	HS	XXI	F		B	A	3-	H	Buttresses flank entrance
1925	Rockport	HS	XXI	F		B	L	2-	U	Stone-capped brick pilstrs
1925	Boston, Cleveland	IS	XXVI	F		B	L	2-	E	Balc over high stone entr

DATE	NAME OF SCHOOL	TYPE	PLATE	ROOF: Flat,Slant,Mansard,Gambril,Wide	ABOVE: Towers,Fleche,Dormers,Gable	MATERIAL: Brick, Stone, Wood	PLAN: I,L,H,T,E,U,Square	STORIES: 1,2,2-,3,3-,4, etc	ENTRANCE: Pillars, Arch, Lintel	SPECIAL FEATURES
1925	Beverly	HS	XLVII	F		B	L	3	U	Wings angle with main
1925	Lexington	HS	XLVII	F	F	B	L	2-	U	Twin entr, much st trim
1925	Franklin	HS	XLVIII	F		B	L	2-	U	Twin entr, stone garlands
1925	Lynn, Eastern	JHS	XLVIII	F	T	B	A	3-	U	Buttressed entr-sec tower
1925	Winthrop	JHS	XLVIII	F		B	A	3-	T	3-story recess over entr
1925	Malden, Lincoln	JHS	XLIX	F	G	B	A	2-	U	Arched canopies on brackets
1925	W Springfield	JHS	XLIX	F		B	L	2-	I	Cent sec betw twin entr
1926	Foxboro	HS	XXIII	F		B	L	2	U	Win arched in pairs, 4 entr
1926	East Boston	HS	XXIV	F	T	B	A	3	H	Oct towers flank entr
1926	Dorchester	HS	XXIV	S	F	B	L	2-	S	Cen sec 8 stone pilasters
1926	Boston, McKay	IS	XXVI	F		B	P	3	H	Resembles factory
1926	Boston, Mech Arts	HS	XXVIII	W	T	B	L	3-	L	Arches over window sectns
1926	Boston, Boys Mem	HS	XXIX	F		B	A	4-	E	Massive stone entr sectns
1926	Boston, Girls Mem	HS	XXIX	F		B	A	4-	E	Massive stone entr sectns
1926	Chelsea	HS	XXIX	F		B	L	3-	L	Col order central sectns
1926	Newton	HS	XXIX	F		B	A	3-	L	Triple arched doorway
1926	Medford, Hobbs	JHS	XXX	F		B	L	2-	H	Stone basement
1926	Westborough	HS	XLVI	F		B	L	1-	U	Arch win betw br pilasters
1927	Quincy, North	JHS	XV	F		B	L	3-	U	Wings at angle with main
1927	Duxbury	HS	XXIV	S	F	B	L	3	I	Doub-chimney ends, 4 dorms
1927	Braintree	HS	XXIV	S	F	B	A	2-	U	Monumental entrance
1927	Whitman	HS	XXVII	F		B	L	2	H	Stone trim at corners
1927	Swansea	HS	XXVII	S	F	B	L	2	H	Stone quoins, blank ends
1927	New Bedford, No	JHS	XXX	F		B	A	3	H	Gym wing two stories
1927	Newton, Warren	JHS	XXX	S	F	B	L	3	H	Connecting wings flat
1927	Pembroke	JHS	XXXI	S	F	B	A	1	E	Central section higher
1927	Hopedale	HS	XXXII	S	D	B	A	1-	H	Entr porch four Ionic cols
1927	Medfield	HS	XXXII	F		B	G	1	S	Other stories to be added
1928	Arlington, East	JHS	XV	F		B	A	2-	L	3-arch entr, Cor cols betw
1928	Weymouth	HS	XXVIII	S		B	L	3-	E	Wings have flat roofs
1928	Medford, Roberts	JHS	XXXIII	F		B	A	3-	E	Basement story of stone
1928	Leominster	JHS	XXXIII	F		B	A	3-	E	Basement story of stone
1928	Groton	HS	XLVI	F		B	P	2-	T	Stone quoins and pediment
1928	Rockland	HS	XLVI	F		B	A	3-	I	Fancy stone-trim cornice
1929	Worcester, Comm	HS	XXVIII	F		B	L	4	S	Bldg #3, English gothic
1929	Agawam	J-SHS	XXXI	F		B	P	2-	U	Two Ionic porticoes
1929	Somerville	HS	XXXI	S		B	A	3-	E	New wings have flat roofs
1929	Hyde Park	HS	XXXI	F		B	A	2-	U	Monumental entr, wide steps
1929	Tisbury	HS	XXXII	F		B	L	2-	H	Arched win in end section
1929	Webster	J-SHS	XXXIII	F		B	A	4-	T	Attached to town hall
1930	Scituate	HS	XXXIV	S	F	B	L	2-	I	Flat-roof wings
1930	Westfield	HS	XXXI	F	F	B	P	3	U	Monumental Ionic entrance

ROOF: Flat, Slant, Mansard, Gambril, Wide
ABOVE: Towers, Fleche, Dormers, Gable
MATERIAL: Brick, Stone, Wood
ENTRANCE: Pillars, Arch, Lintel
STORIES, 1, 2, 2-, 3, 3-, 4, etc
PLAN: I, L, H, T, U, E, Square

DATE	NAME OF SCHOOL	TYPE	PLATE	ROOF	ABOVE	MATERIAL	ENTRANCE	STORIES	PLAN	SPECIAL FEATURES
1930	Brighton	HS	XXXIV	F	T	S	A	3	U	Terraced. Ecclesiastical
1930	Boston, Lewenburg	IS	XXXV	F		B	P	2	U	Col Ionic entr section
1930	Needham	HS	XXXVI	S	F	B	P	2-	E	Monumental Ionic entr
1930	Danvers	HS	XLVI	F	F	B	A	3	I	Stone basement entr sect
1931	Provincetown	HS	XXIII	F		B	P	2-	H	In antis entr. Clock
1931	Billerica	HS	XXVII	F		B	L	2-	U	Round gable over door
1931	Yarmouth	HS	XXXIV	S	F	B	L	2-	T	Chimney end. Library att
1931	Pittsfield	HS	XXXIV	F	F	B	A	4	E	Stone quoins. 2-sto wings
1931	Boston, Curley	IS	XXXV	F		B	L	2-	H	Modern style. Stone pilstr
1931	Ayer	J-SHS	XXXVII	W		B	L	2-	U	One-story wings
1932	Boston, Wilson	IS	XXXV	F		B	L	2-	U	Entr section of stone
1932	Brookline	HS	XXXVI	F		B	L	3-	U	New wings 2-story
1932	Arlington	HS	XXXVI	F		B	L	3-	U	Cor columns and pilstrs
1932	Winchester	JHS	XXXVII	S	F	B	L	3	I	Monumental Cor entrance
1932	Lynn, English	HS	XXXVII	F		B	L	3	E	Monumental Ionic entrance
1932	Boston, Edison	IS	XXXVIII	F		B	A	2-	U	Functional stone entr
1932	Boston, Edwards	IS	XXXIX	F		B	L	3	H	Broken gables over doors
1932	Hamilton	HS	XLVII	F		B	L	2-	H	Arched blank-front wings
1933	Topsfield	HS	XXXVII	S	F	B	A	3	T	Ionic stone pilasters
1933	Boston, Lat School Add		XXXVII	F		B	L	3	H	Terraced between wings
1933	Melrose	HS	XL	F	T	B	L	3-	S	Functional. Aud in middle
1934	Bourne	HS	XLI	S		B	L	1	U	Chimney ends, arch win
1935	Boston, Gavin	IS	XXXVIII	F		B	A	2-	U	Functional entrances
1935	Boston, Shaw	IS	XXXVIII	F		B	L	2-	E	Entrance section lower
1935	Abington	HS	XLI	F	G	B	A	2-	L	Monumental entr section
1935	Tewksbury	HS	XLII	S		B	L	2-	H	Chimney ends 1-st wings
1935	New Bedford	HS	XLII	F		B	A	3-	L	Col Ionic entr section
1936	Newburyport	HS	XXIII	S	F	B	L	3	U	Flat wings at angle
1936	Worcester, North	HS	XXXII	F		B	A	3-	U	Projecting stone courses
1936	Plymouth	HS	XXXIV	S	F	B	L	2-	I	St pilstrs support gable
1936	Wellesley, Warren	JHS	XXXIX	S	F	B	A	2-	H	Semi-circ balc over door
1936	Uxbridge	HS	XLI	F		B	L	2-	T	Pylons beside entrance
1936	Marblehead	HS	XLII	F		B	A	2-	T	Open court in center
1936	W Springfield	HS	XLII	F	T	B	A	2	E	Entr sect 3-story
1936	Roslindale	HS	XLII	F		B	L	2	U	Triple door each sectn
1936	Fitchburg	HS	XLIII	S	F	B	L	3-	I	One-story terrace
1936	Milford	HS	XLIII	F		S	L	3	U	Rough stone
1936	Auburn	HS	XLIII	F	F	B	L	2	T	Monumental entrance
1936	Boston, Brooks D	IS	XLIV	F		B	L	2-	T	Steps to stone entr pylons
1936	Boston, Dudley D	IS	XLIV	F		B	L	2-	U	Modernist entr pylons
1936	Boston, Irving D	IS	XLIV	F		B	A	2	L	Stone Cor pilaster entr

Since the serious development of modern secondary school architecture did not begin earlier than 1870, the types of buildings used before that date are more of interest than of value to this study. They were of wide variety, as may be seen by examples on Plates I and IX. The 1812 and 1865 buildings of the Boston Latin School, erected on a city street in close proximity to other buildings, are necessarily of a very different character from buildings in smaller towns where there is more open space in which to place them. The Haverhill Academy building of 1827, is one of the few survivals of a type of building quite common for academies but very uncommon for public schools at the time when Mann and Barnard began their reforms. Note the cupola on this and on the Punchard Free School of 1856, which may have been a forerunner of the fleche which has become a popular feature of many more recent schools. The classic revival is represented by the Partridge Academy of 1843, an excellent example of a building erected to match the church beside which it was to stand.

The style of the eighteen-seventies is distinctive and, like that of dwellings of that decade, is easily recognizable. The mansard roof, with towers and dormers, so popular in that period, are well illustrated in the buildings of Drury Academy of 1870, Worcester High School of 1871 (already described on P.63), Groton High School (in the same building with the elementary school, as mentioned on P.70), and the Howard High School on Plate X. These buildings are "high" schools quite literally, and must have been very imposing structures in their day. The top floor was usually given to a mass study hall.

The Punchard Free School in Andover was built to restore the earlier one destroyed by fire in 1868, and followed the lines of its predecessor.

The building of the Boston English High and Latin School in 1880, marked the real beginning of modern secondary school architecture. The two schools were housed in one building, or rather two buildings back to back and attached to each other by three connecting wings with courts between - a regular "Siamese twin" type of architecture. It is described on P. 81. It was a nine day's wonder in its time, and inspired more careful planning of high schools erected since.

The Hudson high school, erected at the same time, looks almost modern in many ways, but the dormers in the slant roof and the simple doorways with their projecting canopies, mark the period in which it was built. The Gloucester high school of 1888 shows some of the features of the Boston building on a smaller scale; the third story under its slant roof, and the peculiar tower-like ventilar capping the center of the slant roof, and the liberal ornamentation of the stone trim.

The Warren high school of 1887 is one of the individual designs of the decade. Its round tower with conical roof is one which was used in many buildings - libraries, town halls, and even dwellings, of that period. The chimney projecting from the end wall is a reflection of the old-time chimney end which is being revived in many present-day buildings, such as the Duxbury high school on Plate XXIX, and the Yarmouth high school on Plate XXXIV. The windows with small panes at the top and larger panes at the bottom are also typical of the 80's.

The 80's and 90's were distinctly the decades of slant roofs, but those of the 90's were seldom interrupted by dormers or towers and did not, as a rule contain an attic story. The buildings which they covered were simpler in plan and more dignified in appearance, looking more like a school and resembling less any other type of edifice.

The Malden high school on Plate XI is typical of the decade. The older part of the Somerville high school on Plate XXXI and the Plymouth high school on Plate XVIII, as well as scores of others not illustrated but built about the same time, illustrate variations of the same type. The roof usually has a four-way slant, and the central section of the building is likely to project in front of the ends. There is usually a single door in the center and an auxilliary door at each end.

The Northampton junior high school, which was not erected AS a junior high school, and the Plymouth high school, have gables over the center section, and one story porches over the entrance. The Cohasset high school on Plate XXIII is of wood and while it carries the same slant roof and porch over the door as has been described, it retains some of the features of the previous decade in its octagonal tower and attic story.

The Jamaica Plain high school serves to emphasize what we shall observe to be a general rule, that Boston schools seem to be a law unto themselves and not follow the same styles as those of the smaller cities and towns. We find the chimney-ends, as in the Yarmouth and Duxbury buildings, with a peculiar square tower having a projecting entablature and a dormer in its slant roof. The additions which have been made to it make us a little doubtful as to its original appearance.

In the next decade, the 1900's, the slant roof tends to disappear, although there seems a recent tendency to bring it back. The earliest of the flat-roof buildings which we illustrate, outside of Boston, is that in Canton, Plate XLV. It is a simple, H-shaped building, with the one door in the center section.

The Leominster and Salem high schools are built in much the same way, although not quite so plain. All of these tend to emphasize with stone

courses the horizontal lines of the flat roof. The Haverhill high school of 1908 adds a feature destined to become quite popular in the larger buildings, a triple arched entrance in stone, reached by a broad flight of steps, crowned with a balcony, and surmounted with two-story or colossal Ionic columns, supporting a gabled pediment. Some of these features appear in many later buildings, but in very few of them are all combined.

The South Boston high school of 1901 had the triple entrance, but the doorways were lintel, not arched, the center one being higher and capped with a cornice on consoles, and the entrances were in brick, not stone. There are four, instead of two, Ionic columns, and the entire entrance section, pedimented gable and all, project above the roof-level.

The Northampton, Malden, and Dorchester Girls high schools carry over the slant roof into the 1900's, although the Malden school is in an addition to match the older slant-roofed building. The Charlestown high school has the flat roof and the colossal order, but in a different style. The triple, lintel entrance is there, in the basement story, then the six colossal columns appear above the first story in a recessed space occupying the two middle quarters of the facade, with no gable at all, supporting only the architrave and wide, flat cornice.

The Girls Latin School in Boston is a unique building. Rather it is a triple building, the two outside buildings being three-story and flat-roofed, connected by a one-story, ornate entrance on either side to the two-story, slant-roofed central building, which is crowned with a slender spire. There is much white stone trim including twelve columns separating the alternating window- and wall-spaces of the central building. The ensemble is most successful amd impressive, the building itself seeming to express the femininity of its purpose.

It is hard to designate the next decade as having any special characteristic. It is the decade which included the time of the Great War which worked a subtle change in social attitudes throughout the world, and even disturbed the steady progress of schoolhouse planning. We find high school buildings adhering in general to the general lines of the previous decade but with a wide variety of arrangement of parts.

There is, however, one new feature which made its appearance at this time which did not at first make much of an impression but which has since been growing in favor. In 1914, Stanley Parker, a Boston architect, designed the Ames High School in North Easton. It is a small town and a small high school. He used a type of Georgian architecture which seems to be typical of Massachusetts, and which has been much affected by the older colleges of the Commonwealth which try to preserve their early atmosphere. He crowned it with a cupola or fleche which some authorities think may have been suggested by the chapel at Amherst college, by some of the Harvard buildings, or even by those of Phillips Andover Academy.

This fleche feature is to be found in a number of the buildings shown in our plates; in the Drury high school, the Bird junior high school in Walpole, the Longmeadow junior high school, the Boston Public Latin School, the Falmouth junior high school, the Lexington high school, the Chatham high school, the Duxbury, Braintree and Swansea high schools, the Warren junior high school at Newton and the Pembroke junior high school, the high schools at Scituate, Westfield, Needham, Danvers, Yarmouth, Pittsfield, Winchester, Topsfield, Melrose, Newburyport, Plymouth, Fitchburg, Auburn, Fairhaven, and the Warren junior high school at Wellesley. In Pittsfield this feature rises almost to the dignity of a dome, having some slight resemblance at a distance to the Boston State House itself.

The Boston High School of Practical Arts has a number of unusual features. It is on the corner of two streets both sharply sloping on hill sides, and that corner of the building is emphasized by a face at an angle of forty-five degrees with the two main faces, and containing an entrance. The main doorway is crowned with a small gable, and the colossal order above is Doric, one of the few buildings in which this order is used. A story above the cornice is a central feature of each side. Many brick pilasters mark the spaces between windows in the two upper stories.

The Boston High School of Commerce is also a different building. Its central portion resembles an armory. Its wide entrance with flat arch, the great pylons beside it with gable above, the battlemented parapet of the terrace story, all present a military aspect quite at varience with the somewhat awkward wings with their blind walls and many corners and chimneys.

The Attleboro high school in yellow brick, with colossal in antis Corinthian columns flanking the entrance, has a superstory above the cornice and gable, and is one of a number of buildings in thich the end sections as well as the entrance section, project in front of the main walls, and are blind, containing no openings, the windows for those end sections being on the other side of the building.

The Dedham high school has another feature which is found in a number of buildings. It has the blank-front end sections, which do not, however, project in front of the main wall, but it has twin doors at either side of the central section, with balconies and large windows over, and most of the other windows grouped between. The colossal Corinthian order of the Brockton Girls high school is reminiscent of the arrangement of facade in the Charlestown high school, although the entrance is higher, reached by two flights of stone steps, and arched.

The Winthrop junior high school in Brockton was the first to be designed for public use, in 1916. Previous junior high school buildings had been adapted from buildings originally intended for other uses. Its novel external features are its wide eaves, its T-shape, the central section projecting forward to the sidewalk, its stone basement story, its wide triple entrance and the flat colossal Corinthian pilasters over it. As a rule there is no noticeable difference between the architectural appearance of a junior high school and a senior high school, and for that reason they are combined without distinction in our study of secondary school buildings. The wide eaves on a flat-roof building are also found on the Wakefield high school, the Boston Mechanic Arts high school, the Ayer Junior-Senior high school, and a number of other buildings.

The Lynn Classical high school presents no new features except the denticulated cornice and gable above the 2nd storey of the entrance section. But the turreted square tower rising above the flat roof with the vertical accents of the Chicopee high school presents a rather novel appearance. A new feature is found in the Plymouth high school in the Palladian motive used as decoration on the front of the central, gabled section.

The year 1918 marks the beginning of a very active era of public building following the close of the War. While the Bird junior high school in Walpole, 1920, presents no particularly new features, its combination of very old features - fleche, monumental entrance, gabled end sections, transverse chimneys, small-paned and white-framed windows, gives it the appearance of a building at least a century old . The same could be said of the central part of the Falmouth junior high school, but its sprawling wings bely its otherwise ancient appearance. The Longmeadow junior high school is one of the few gambril roofed buildings, built to imitate an older

school on the same site. It has a number of interesting features. There are five rather prominent white arches over groups of windows in the front of the central section between the twin doors which are on one side of the two gable-fronted end sections, with a terrace and balustrade connecting them. Dormers light the front of the second story but the sides are lighted by full size windows on the side wall carried up to a continuation of the upper slant of the roof. This is one of the buildings which has a fleche.

The F. A. Day junior high school in Newton is one of several buildings which has the two wings at an angle with the main building. The Beverly high school and the Quincy North junior high schools are other examples.

The Boston Public Latin School, 1922, has the monumental entrance, the fleche, the chimney-ends and the regular arrangement of windows which would have made a very effective colonial building had it not been for the awkward wings with their blank-front walls which rather impair its looks.

The South junior high school in Waltham has a wing on the adjacent street, containing a gymnasium, a community hall and a public library. The broad steps leading up to its triple entrance, separated by colossal columns makes the wing much more imposing than the school building itself, much like "the tail wagging the dog".

This is also true of the Adams junior high school. The flamboyant Gothic windows and the buttresses in the gymnasium-auditorium wing makes it resemble a church more than a public school. The peculiar entrance blocks placed in the angles of the end projections in the Norwood high school seem a rather unfortunate arrangement. The Palmer high school, with its colossal Corinthian entrance and its symmetrical side sections, is a singularly harmonius and satisfying building.

A very interesting junior high school building is illustrated on Plate XXV, the Grafton Street junior high school in Worcester. The six Ionic colossal pillars with the perfect entablature and the urns over each, made an entrance section all in stone, which sets off the entire building. But the simplicity and refinement of the rest of the building, both inside and out, is fully in harmony and does credit to its architect.

The Eastern junior high school in Lynn has a tower which reminds one of the Chicopee high school with Gothic pointed windows in it, but the windows elsewhere are in panels and their swinging sashes remind one of a factory. It is a curious combination.

In the same year, 1925, was built a junior high school in Malden which one has also some difficulty in recognizing as a school building. Its twin doors are covered with an arched gable supported on brackets and the entrance sections are bare, narrow, and terminate in an angle at the top. The side wall shows a window arrangement that is much more ordinary for a school.

The Chatham and Duxbury high schools of 1926 and 1927 respectively, are fine examples of an architecture singularly suitable for the section in which they are located, harking back to Old Colony days. It is a style which will not be outmoded in a few years. The Chatham school houses the town offices, and the Duxbury school, with its fleche, chimney-ends, dormers, white-mullioned windows and all, is a delight to the eye.

Weymouth's civic center combines the high school, memorial auditorium and town building in a harmonious group. On the other hand, the Worcester high school of commerce is housed in three buildings erected at widely different times and in widely different styles. The third building, 1929, has many features resembling English Gothic. The combination is not happy.

The Boston Mechanics Arts high school was described on page 91. Its building is shown on Plate XXVIII. Its flat roof and wide projecting eaves, with its square tower, remind one of some vague combination of San Ambrogio in Milan and the Palazzo Vecchio in Florence. It is on a crowded side street surrounded by blocks of brick houses and warehouses, not easily found by the stranger to Boston.

The Boston Memorial high schools, one for boys and one for girls, are so near alike that they might have been built from the same plans.

The Somerville high school is a fine example of a gradual development in a rapidly growing city. The original high school building was erected about 1871 and was known as the Latin School. In 1895 the English High school was built near it, an old church building having been torn down to make room for a lawn in front of it. The city library, over which Sam Walter Foss, the poet, presided, was on the other side of the English high school building. As the school grew, two wings were added on the rear and another wing was built, connecting it with the Latin school building. Next a new library building was built at the southeast corner of Central Hill park, and the old library was incorporated in the high school group. In 1929, the Latin school and old library were torn down and new wings for the high school were built, and a gymnasium added to balance the city hall. Five of these six buildings are now connected with a single corridor passing through them all and making a total structure which is easily larger than the 1882 building in Boston which was called the largest public school building in the world when it was built. This building was one in which the late Frank Irving Cooper, who planned the arrangement, took pride as one of his greatest masterpieces.

The Pembroke high school, 1927, is a one story building in E-shape, the

central section being a little higher than the others and capped with a fleche. It is useful but not decorative.

The Westfield high school of 1930 is a fine example of an impressive approach up a broad stairway, with a monumental entrance, stone section with fleche on a flat roof of what without these central features would look like a very ordinary factory.

Few of the buildings in this decade present many new features, but the Hopedale high school has one. It is a balcony-crowned iron porch roof supported on four stone Ionic columns on a semi-circular stylobate, and similar iron canopies over the side entrances supported by chains. Dormers interrupt the slant roof of the main building, all of which is on a level lower than the street.

The Medfield high school is by all odds the homeliest building we illustrate. It is the effect of the Depression, built in 1927 with the expectation of adding other stories as the school grew and the town could afford it. But that time has not yet come and the building is still waiting like a church which builds a basement and cannot build the rest. Its walls are discolored and it is almost bare of any decorative quality other than the very simple gabled doorway.

The Webster senior-junior high school is a building which is saved the description of the Westfield high school by being attached to a truly beautiful town hall with monumental Ionic entrance, clock-tower, balustraded roof and fine window-spacing, which quite redeems the much more ordinary school building behind it. On the other hand, the Yarmouth high school would be much improved by removing the wooden library attached to it. The Pittsfield high school is big and imposing but one hesitates whether to describe it as ornamental or ornate.

The Brighton high school of 1930 is a magnificent aggregation of stone towers and terraces, archvolted doors, windows arched in groups of fours, and broad steps up which a company could march abreast. There seems little evidence that economy was practiced in its construction, and when one compares it with the pitiful little building in Medfield one is lead to think it a shame that the wealth of the various communities in the Commonwealth could not be more evenly distributed.

The various intermediate schools in Boston - for Boston does not use the term "junior high school" - widely differ from each other in details, and yet there is a certain sameness about them which at once sets them apart from buildings in the smaller cities of the state.

The Lewenburg intermediate school has two minor doorways with broken circular pediments enclosing a superposed window capped in turn by a smaller gable, and a triple main entrance under a colossal Ionib order. The Wilson school has an entrance section of stone which does not stand out too sharply from the brick. The Curley school, however, is of a distinctive design with many fluted flat pilasters and certain very modernist touches about doors and windows.

The Needham high school has the slant roof, the monumental entrance section, the fleche, the balconies, arched windows and stone trim which have been found in other buildings. There seems to be very little that is new in the building except certain details of the stone trim, but the combination shows such restraint and refinement as to make it one of the most successful buildings in point of appearance, in recent years.

The Brookline high school has had wings added, and an auditorium, that have resulted in making a quadrangle in the rear of the building quite like that of a college, which, with the old building is almost enclosed.

Of the three new intermediate schools of 1935 the one feature worthy of mention is the smooth and massive stone entrance sections of the Edison school, especially the central one with its arch extending nearly the entire height of the building, and the wide steps leading up to it. The two outer entrances, together with the stone ornament on either side, solve the problem of blank-front wings in a modern and rather satisfactory manner.

For a small building, the Warren junior high school in Wellesley is rather good, although the blank-front end walls are somewhat unpleasant. The tiny circular dormers make an interesting spot on the shingled roof. The Edwards intermediate school has the same door pediment broken by a window which we saw in the Lewenburg school.

The Melrose high school, pictured on Plate XL, is one of the finest of the new buildings. It is erected on a parkway, facing a delightful little lake and adjacent to the athletic field which was use when the high school was in its old building about a mile away. The type of architecture is strictly modern and American, with few if any features that are found in classical or colonial styles. It is functional and restrained. With the exception of the gymnasium wing it is square in plan with the auditorium in the middle. The auditorium will seat the entire school of 1300 pupils. Every feature which aids in the instruction or administration of a modern high school has been provided The building cost 36¢ per cubic foot and there are 1,980,000 cubic feet, none of it wasted. Of the total floor area of 126,962 square feet, 52.5% is for instruction, 25% for corridors and stairs, 2.5% for administration, and 20% for walls, partitions, flues and accessories. This accords very favorably with the N.E.A. standards, for if the second and fourth item run a little over the maximum set the third is so far below that it is probably a matter of classification, and the first

item, that of instruction, which is the really important one, is well over the minimum. The building may well be considered a most successful one, both as to appearance and as to efficiency, and Melrose may well be proud of its new high school.

The Uxbridge high school is a much smaller building than the one in Melrose but is built in the same modernist style, the pylons which flank the entrance being particularly impressive.

The Marblehead high school is another hollow-square type with square attached wings in the rear. The Fitchburg high school is dignified and utilitarian. Its window grouping in panels, its terrace story on the Pleasant Street front, the large and well proportioned fleche, and the absence of columns, makes it novel in design but rather pleasing.

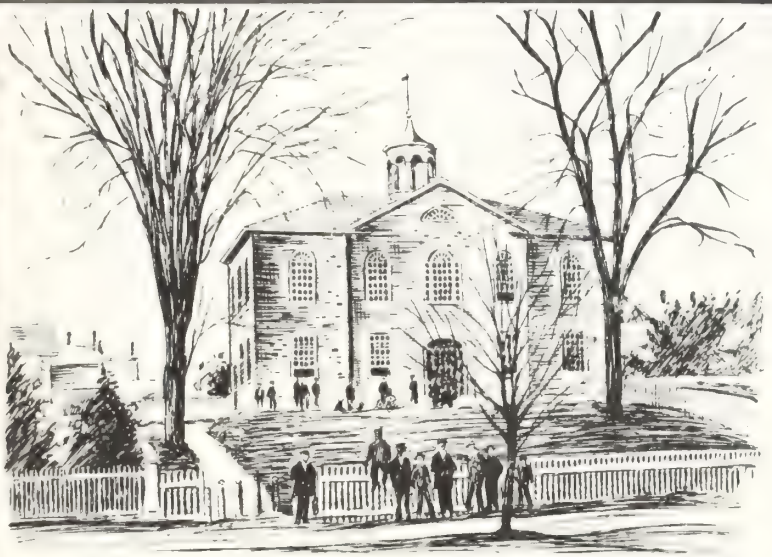
The Jeremiah E. Burke High School for Girls in Dorchester has four floors fronting on Washington Street and five on Geneva Avenue. It cost $1,600,000 and took only sixteen months to build, having been turned over to William W. Drummey, superintendent of schoolhouse construction on January 18th, 1934. It accommodates 1750 girls and 100 teachers. It has 57 classrooms, 36 offices, and 21 special rooms and laboratories. It is equipped with an elevator to transport physically incapacitated students to the upper floors.

It is built of brick, granite, steel and limestone, and the only combustible material in it are the wooden floors covering the concrete ones in the classrooms. The walls are of enamelled brick, the grillwork, window frames and outside doors are of aluminum. All interior corners are rounded. The auditorium seats 10,004 and can be emptied in 90 seconds. It has such treatment for acoustics that the band can rehearse in it without even its highest notes being heard in the adjoining classrooms.

1843 - PARTRIDGE ACADEMY in Duxbury. Annex in 1897

1856 - PUNCHARD FREE SCHOOL in Andover.
Burned in 1868

1871 - PUNCHARD FREE SCHOOL in Andover.
Razed in 1934



HAVERHILL,
MASS.

The school attended by John G. Whittier.

Now used as offices for the school department.

1827 - HAVERHILL ACADEMY (Later Haverhill High School)

1870? - DRURY ACADEMY in North Adams.
Razed in 1915

PLATE II

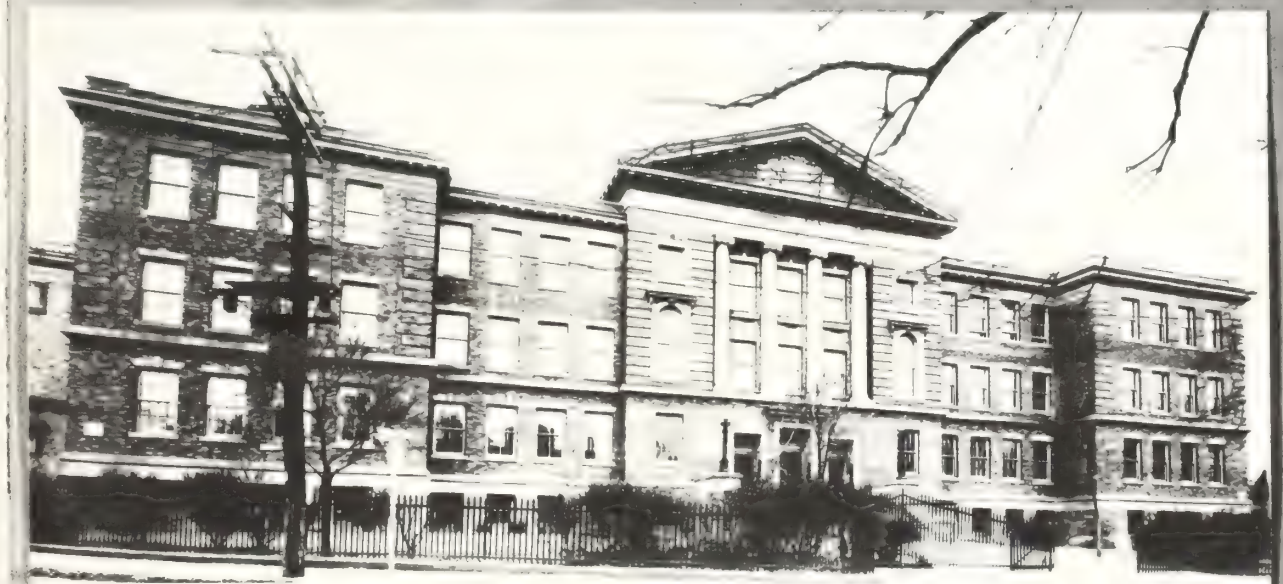
1875 - [illegible] in West Bridgewater. [illegible] Woodcock, Arch.

High School, Malden, Mass. [illegible] A type of school building of the [illegible] popularity.

PLATE II

1905 – NORTHAMPTON HIGH SCHOOL

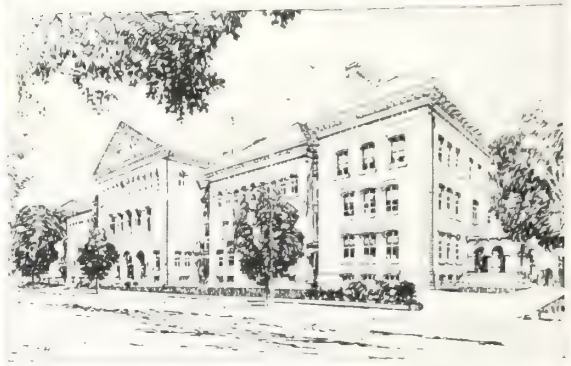
1870 – BOSTON GIRLS' HIGH SCHOOL



1901 – SOUTH BOSTON HIGH SCHOOL 1926 1936

1890 – NORTHAMPTON JUNIOR HIGH SCHOOL

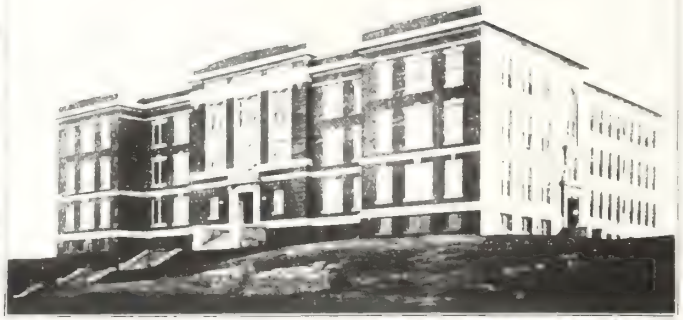
1904 – LEOMINSTER



In 1906 Malden's High School was enlarged as shown above.

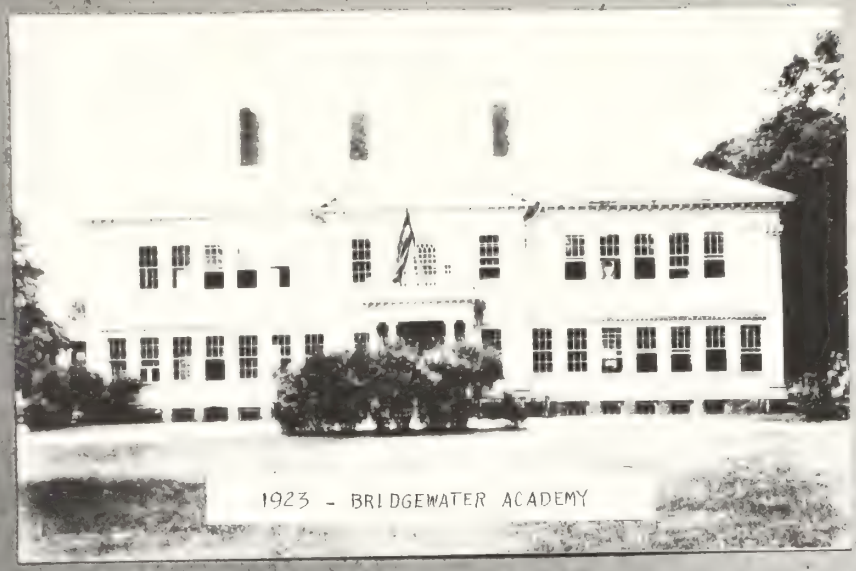
1907 - GIRLS' LATIN SCHOOL

1907 - CHARLESTOWN

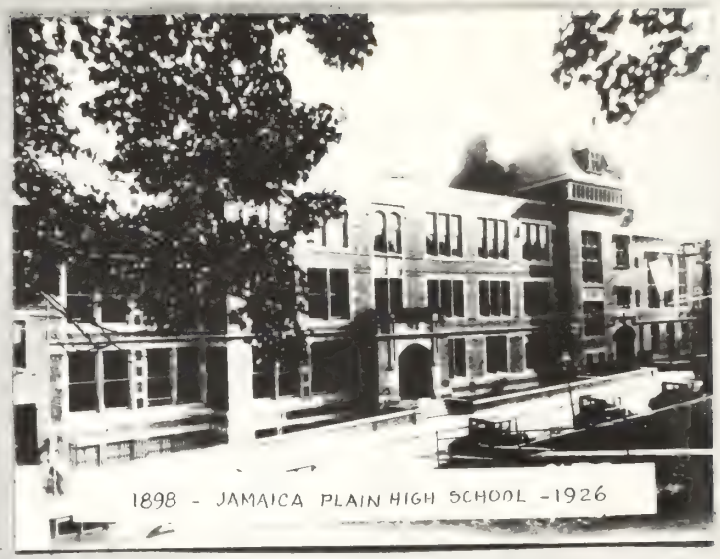


1907 - [illegible]

PLATE XIII

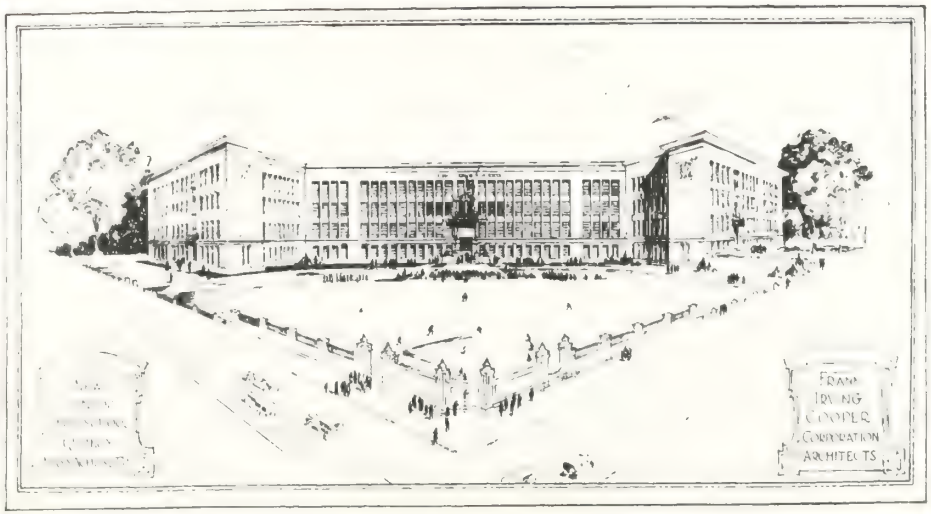


1923 - BRIDGEWATER ACADEMY

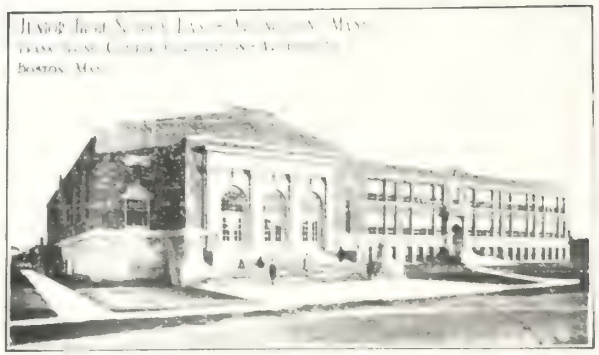


1898 - JAMAICA PLAIN HIGH SCHOOL -1926

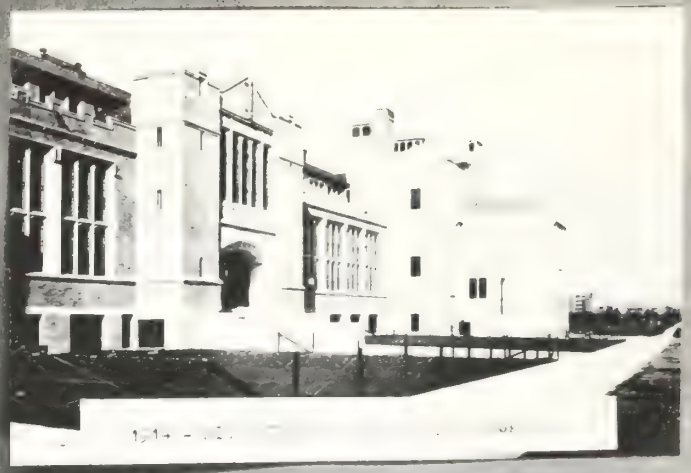
1927 - NORTH JUNIOR HIGH SCHOOL IN QUINCY



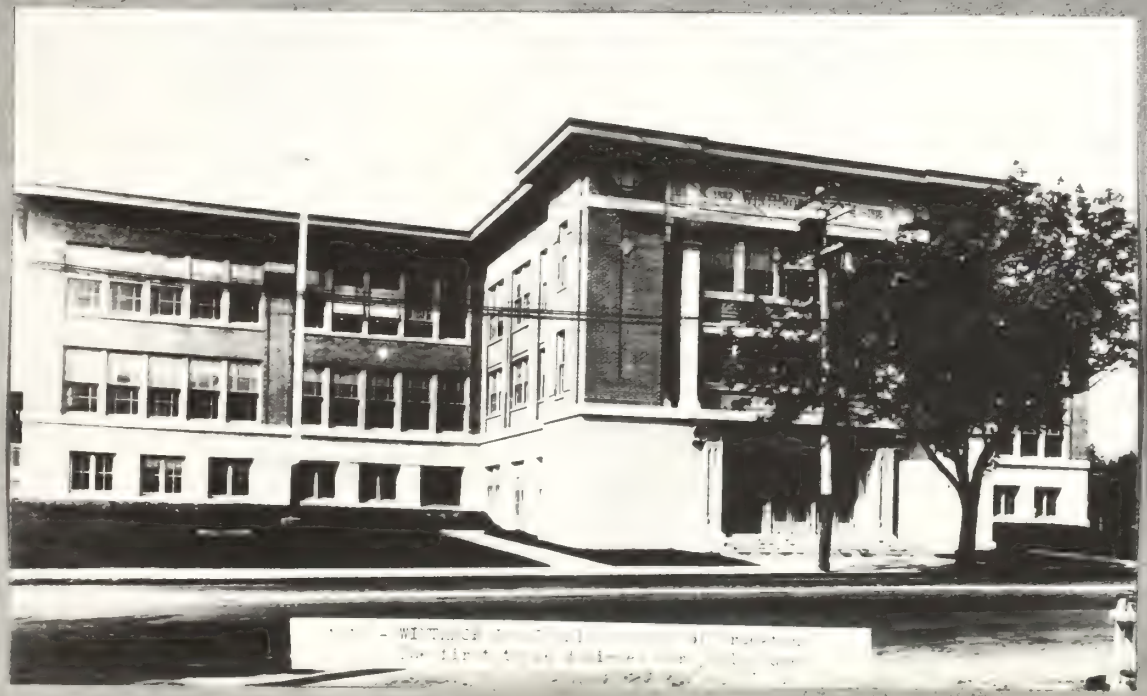
1926 - ARLINGTON

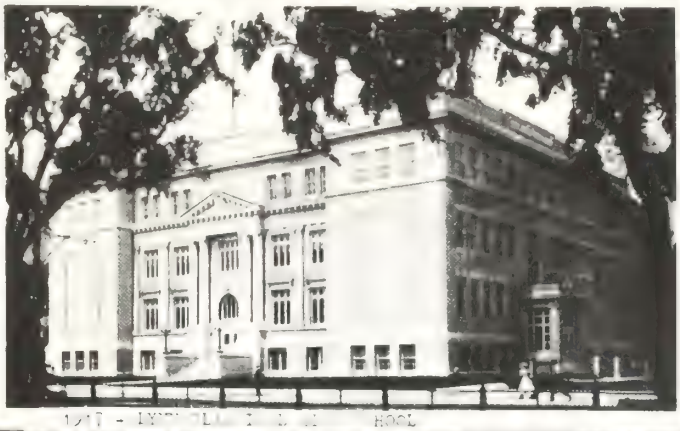


1915 - DRURY HIGH SCHOOL



1913 - ATHITI TY HIGH SCHOOL - Worcester





1917 - [illegible] SCHOOL

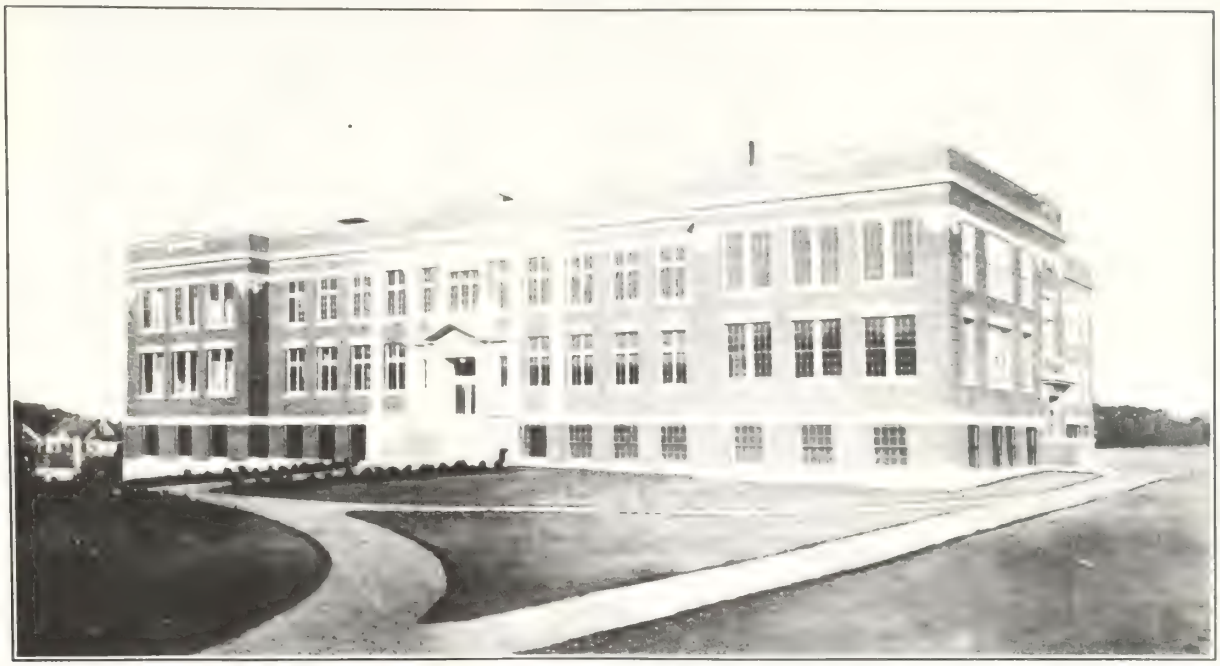
1917 - [illegible] SCHOOL. [illegible] Rayner, Arch.

1916 - [illegible]

1892 - PLYMOUTH HIGH SCHOOL

1917 - [illegible]

1917 - TAUNTON HIGH SCHOOL



1917 - ATTLEBURY HIGH SCHOOL

1919 - BRIDGEWATER JUNIOR HIGH SCHOOL

Longmeadow Junior High School, Longmeadow, Massachusetts.

1922 - JUNIOR HIGH SCHOOL in NEWTON

E. A. Day Junior High School

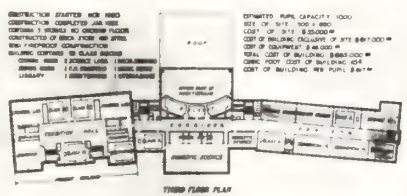
WALTHAM MASS

FRANK IRVING COOPER

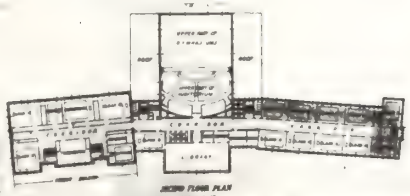
TEAM OF
SCHOOLHOUSE ARCHITECTS

JUNIOR SENIOR HIGH SCHOOL PEABODY MASS

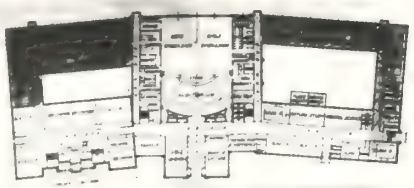
FRANK IRVING COOPER CORPORATION BOSTON AND HARTFORD
- ARCHITECTS & ENGINEERS -



THIRD FLOOR PLAN



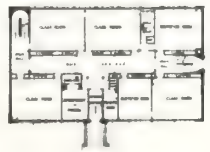
SECOND FLOOR PLAN



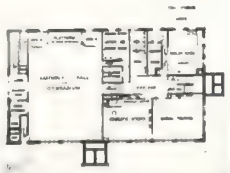
FIRST FLOOR PLAN

HIGH SCHOOL TEMPLETON MASS

FRANK IRVING COOPER CORPORATION BOSTON AND HARTFORD
- ARCHITECTS & ENGINEERS -



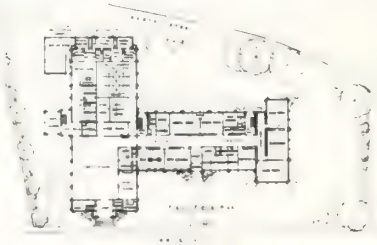
FIRST FLOOR PLAN

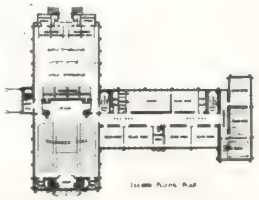


BASEMENT PLAN

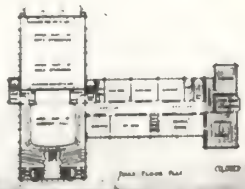
JUNIOR HIGH SCHOOL ADAMS MASS

FRANK IRVING COOPER CORPORATION BOSTON AND HARTFORD
- ARCHITECTS & ENGINEERS -



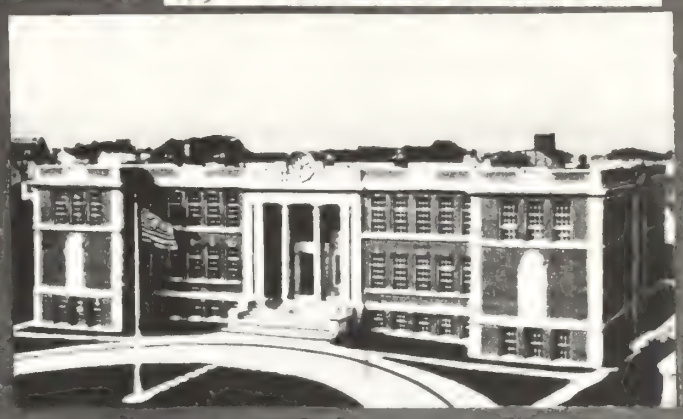


SECOND FLOOR PLAN



THIRD FLOOR PLAN

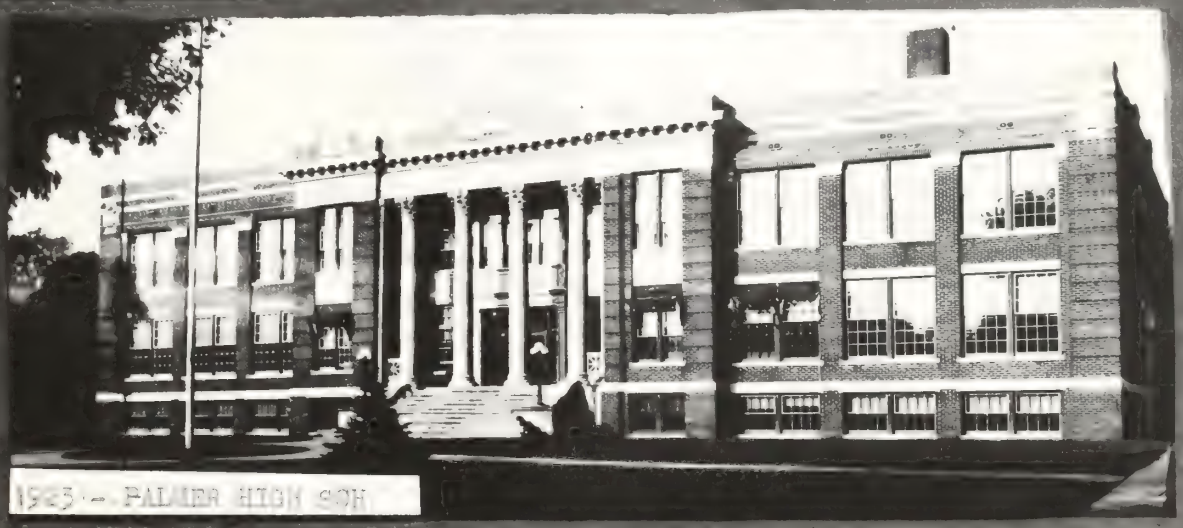
1914 - ATTLEBORO HIGH SCH



1951 - PROVINCETOWN HIGH SCH

1954 - NEWBURYPORT HIGH SCH

1891 - COHASSET HIGH SCH



1923 - PALMER HIGH SCH

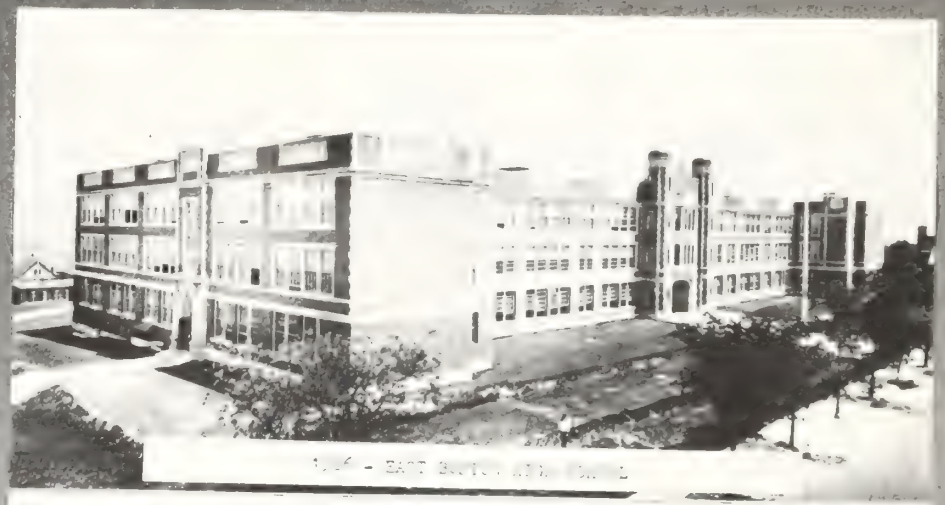
1926 - FOXBORO HIGH SCH

1882 - HUNTON HIGH SCHOOL

1927 - DUXBURY HIGH SCHOOL

1923 - STONEHAM HIGH SCHOOL

1927 -



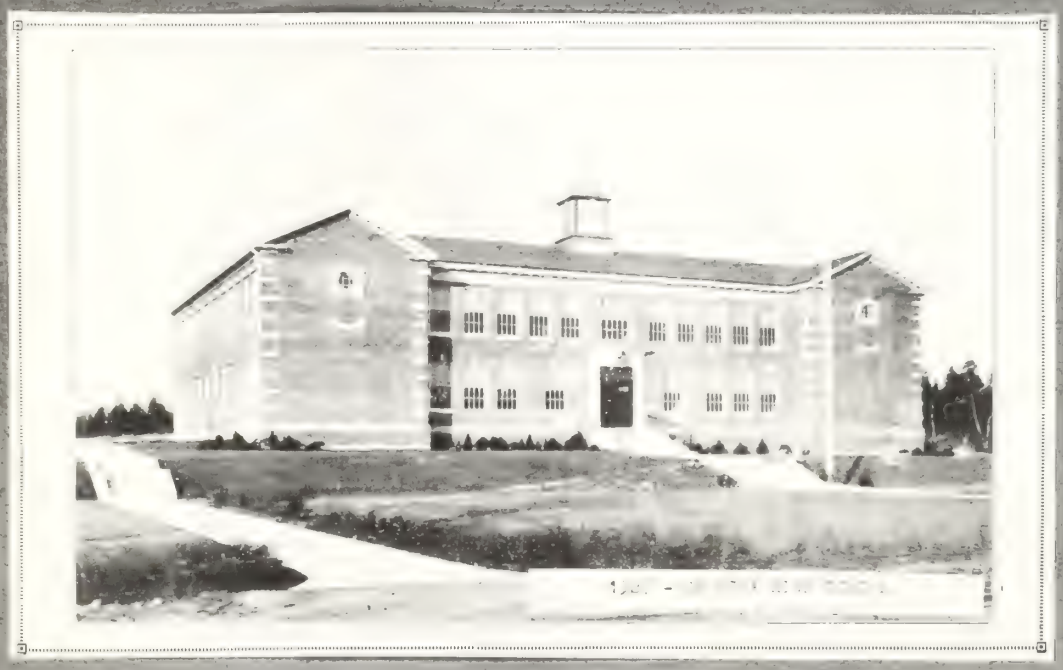
1926 - EAST BOSTON HIGH SCHOOL

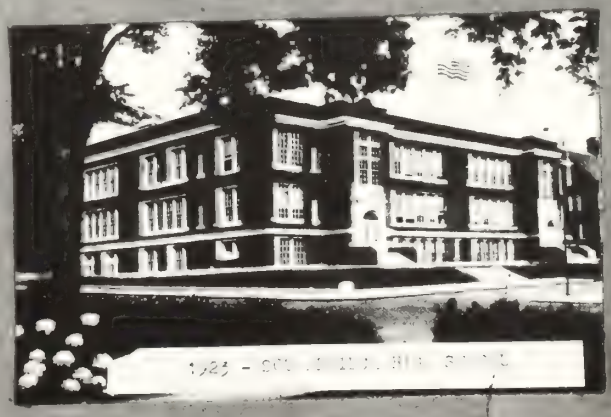
EAST BOSTON HIGH SCHOOL


1925 GROVER CLEVELAND

1923 -

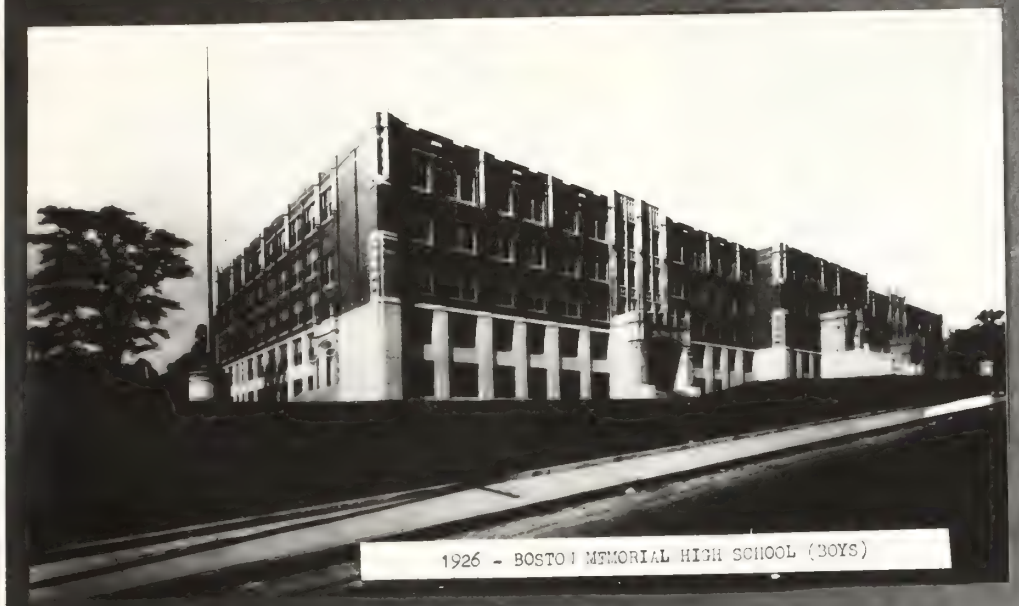
1921 -



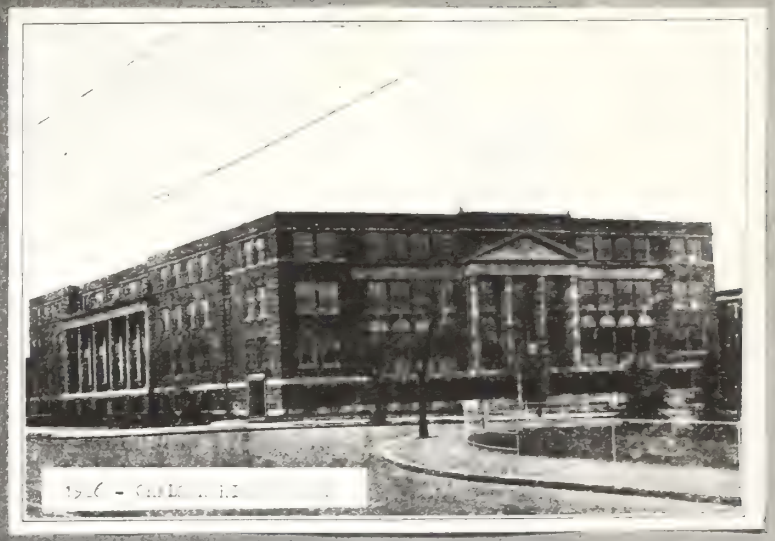


1923 -

WEYMOUTH'S CIVIC CENTER COMBINES THE HIGH SCHOOL, MEMORIAL AUDITORIUM AND TOWN BUILDING



1926 - BOSTON MEMORIAL HIGH SCHOOL (BOYS)



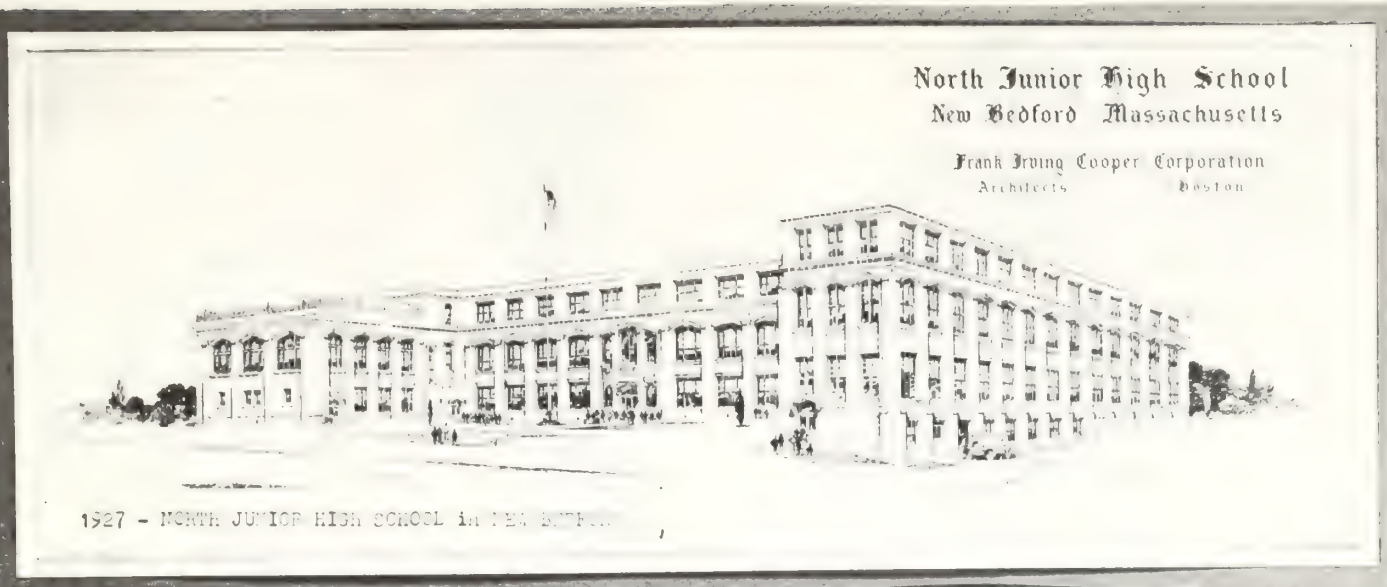
1926 - [illegible]

1926 - NEWTON HIGH SCHOOL

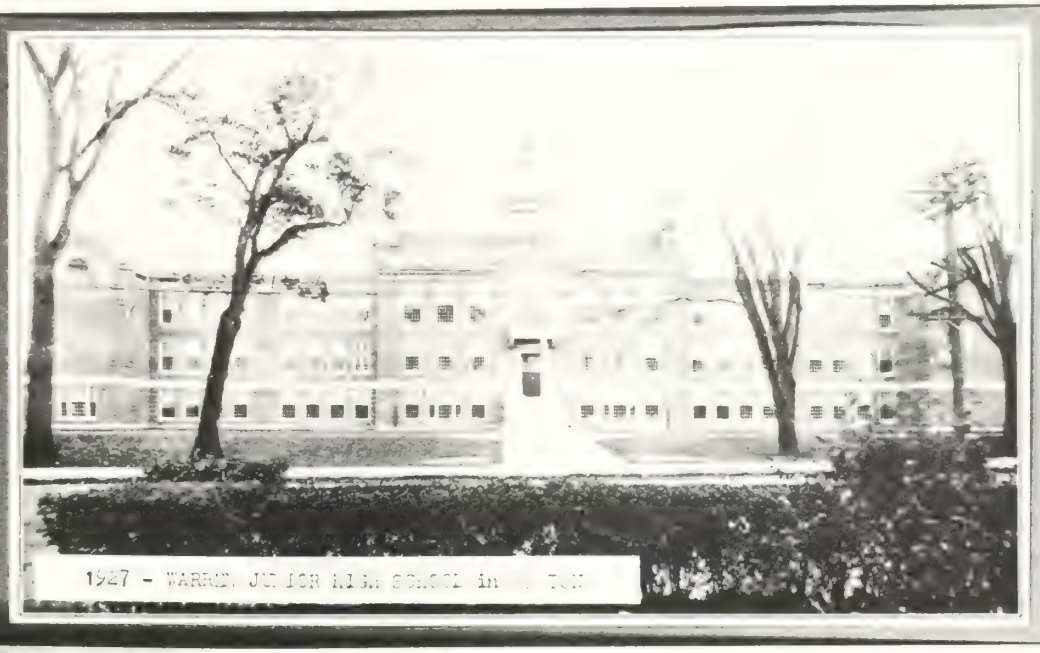
ADMINISTRATION BUILDING, NEWTON HIGH SCHOOL

1926 - [illegible]

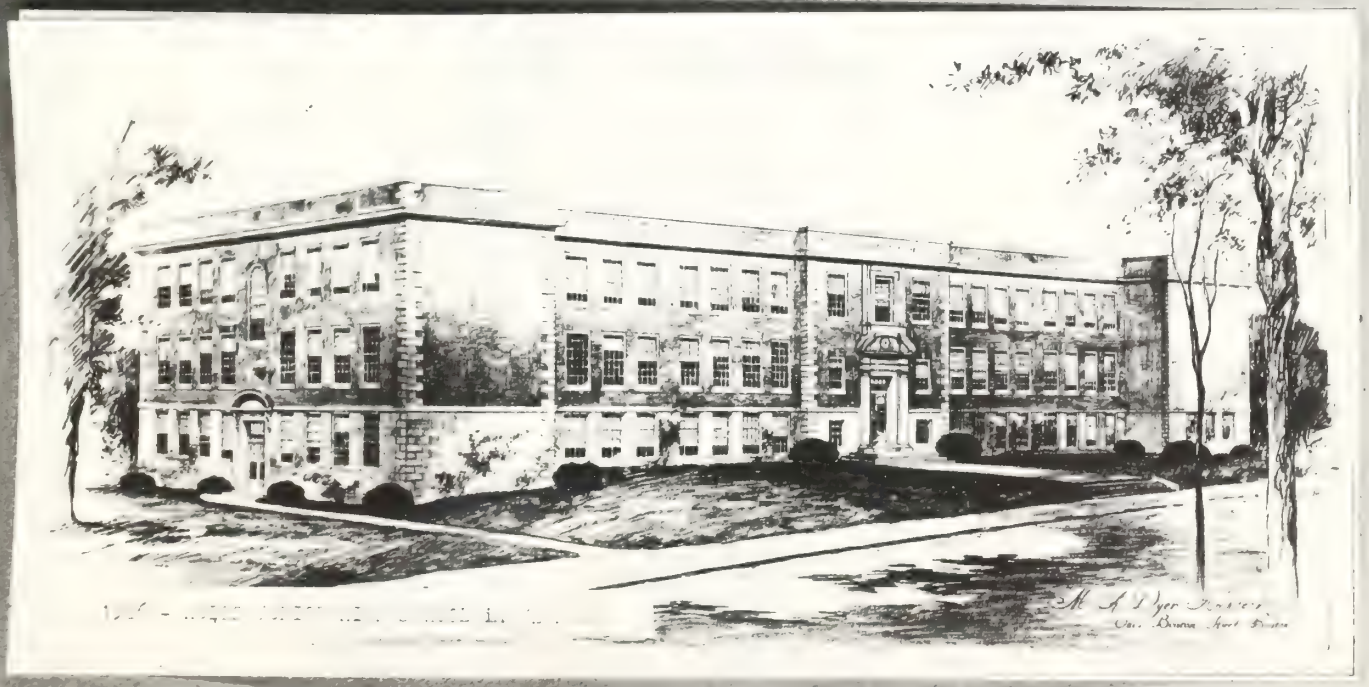
MEMORIAL HIGH SCHOOL



1927 - NORTH JUNIOR HIGH SCHOOL in NEW BEDFORD



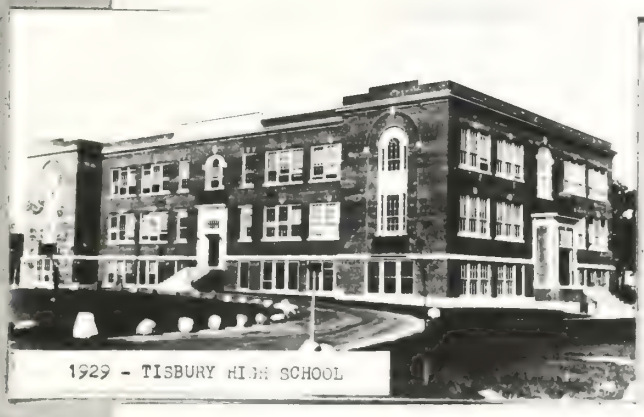
1927 - WARREN JUNIOR HIGH SCHOOL in [illegible]



[illegible]

WESTFIELD HIGH SCHOOL WESTFIELD MASSACHUSETTS

THE GENERAL DRAPER HIGH SCHOOL BUILDING.



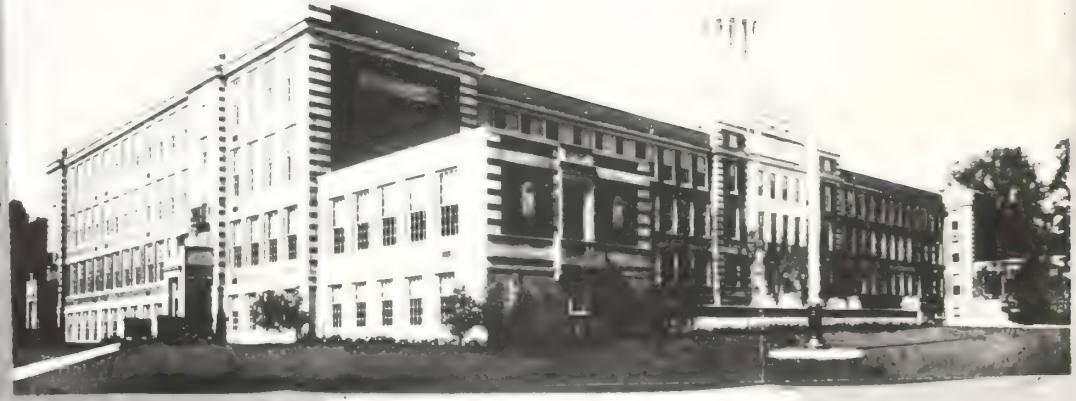
NORTH HIGH NEW BUILDING.

1949 - WEBSTER JUNIOR-SENIOR

1930 - BRIMMER HIGH SCHOOL

1930 - SCITUATE HIGH SCHOOL

1931 - YARMOUTH HIGH SCHOOL

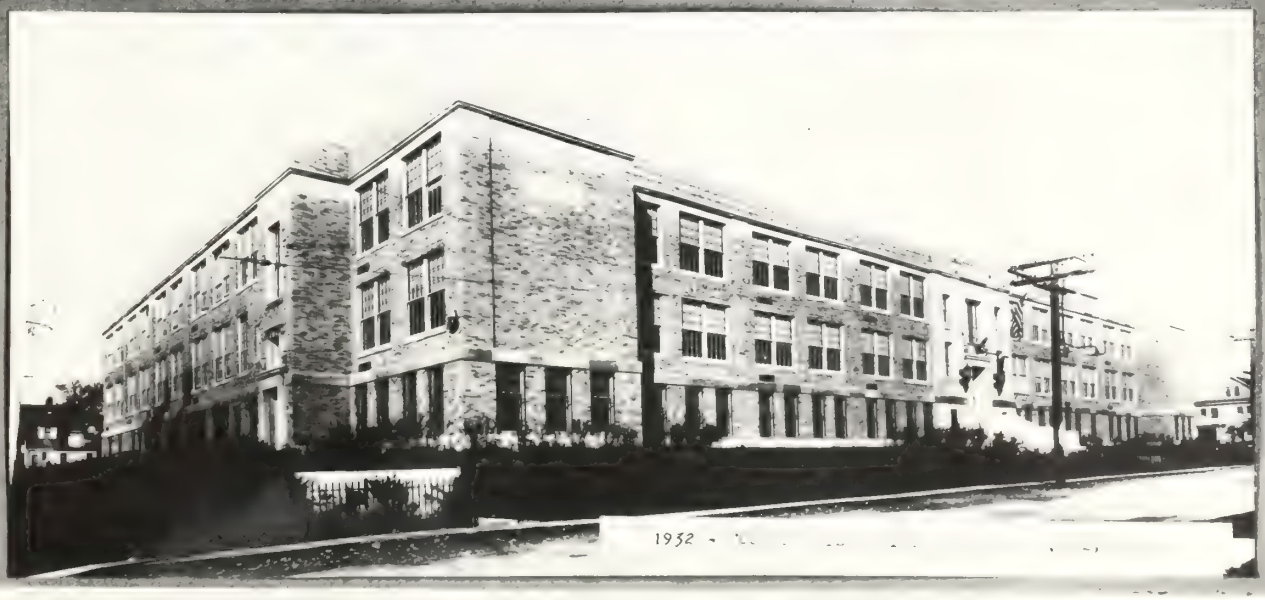


1931 - [illegible]

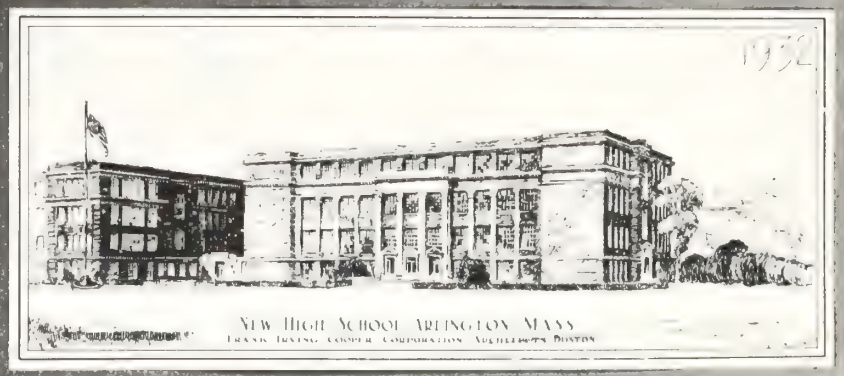
PLATE XXXIV

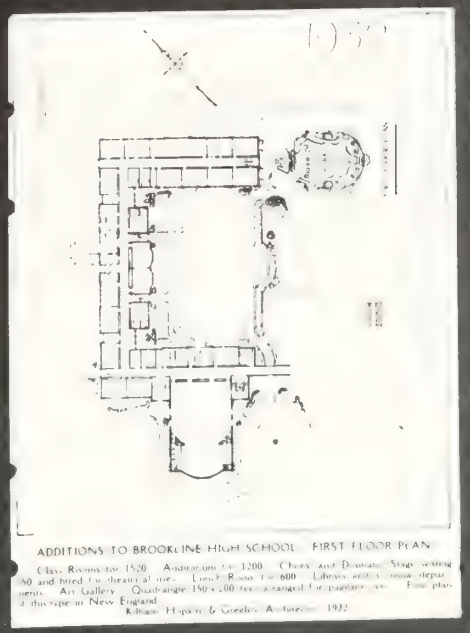
1930 - SOLOMON LEWENBURG INTERMEDIATE SCHOOL, DETROIT

1931 - [illegible]



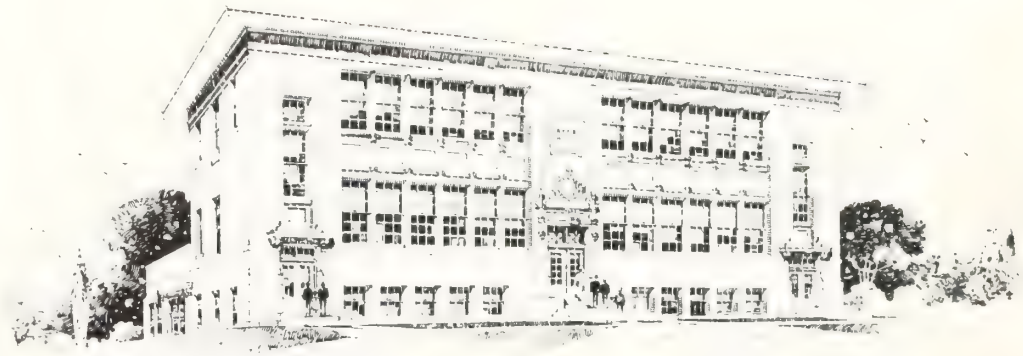
1932 - [illegible]



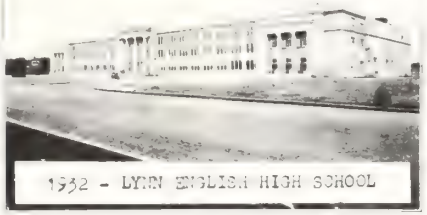


THE NEEDHAM HIGH SCHOOL NEEDHAM MASS

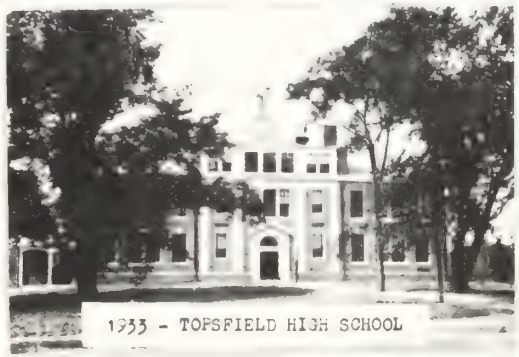
1932 - WINCHESTER JUNIOR HIGH SCHOOL



1931 - NEW JULIA RICHMAN HIGH SCHOOL



1932 - LYNN ENGLISH HIGH SCHOOL

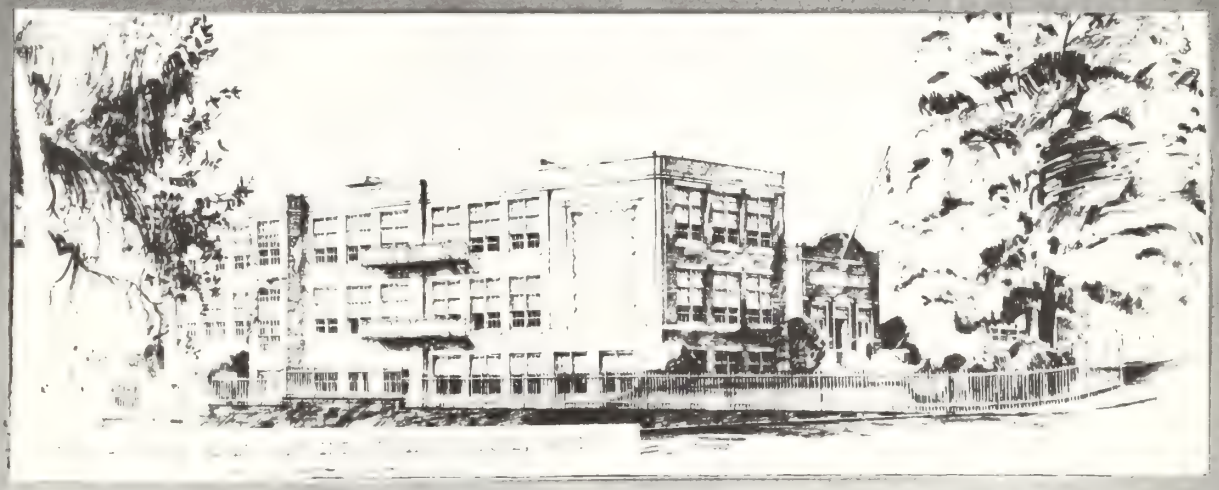


1933 - TOPSFIELD HIGH SCHOOL

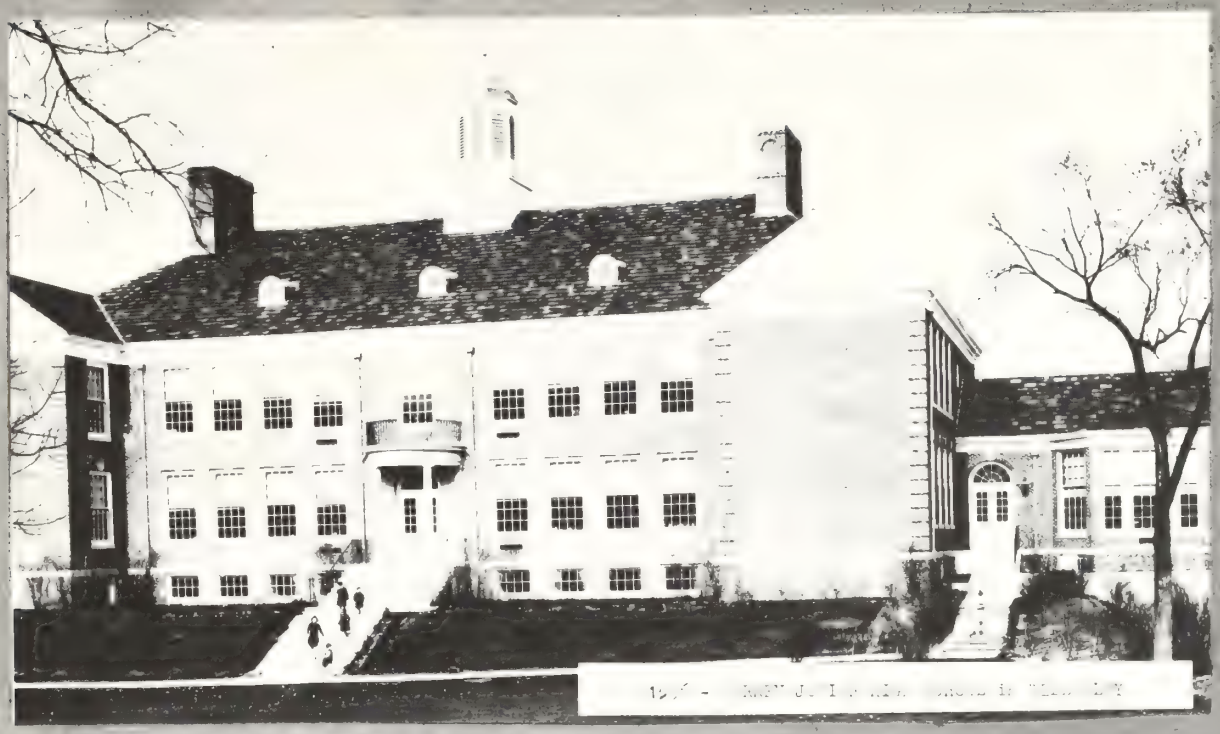
1933 - BOSTON LATIN SCHOOL ADDITION

THE BOSTON LATIN SCHOOL, SHOWING RECENT ADDITION

1930 - PART I N. J. JAYV. INDUST. INST. [illegible]



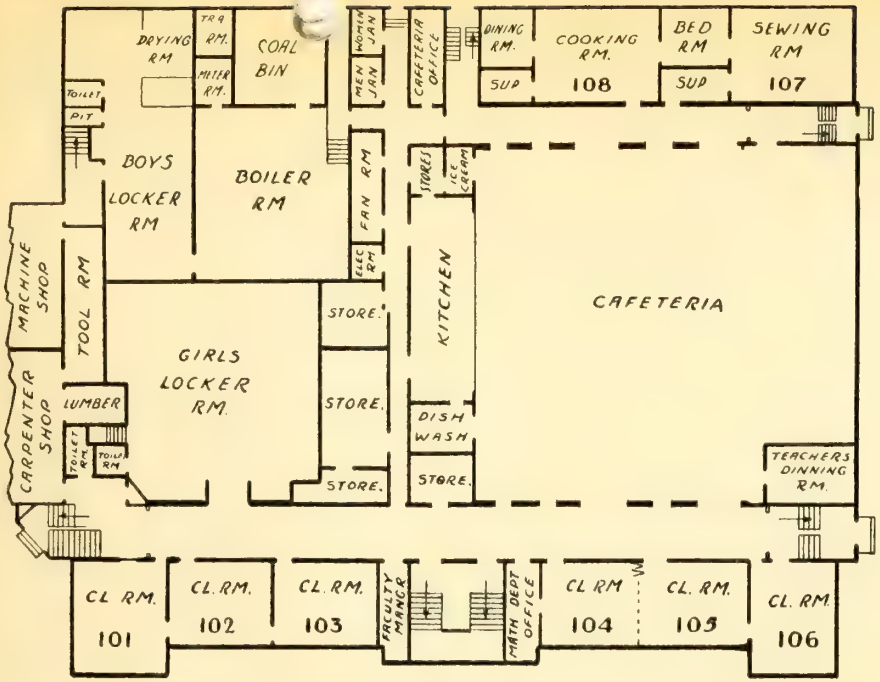
1932 - THOMAS A. EDISON INTERMEDIATE SCHOOL



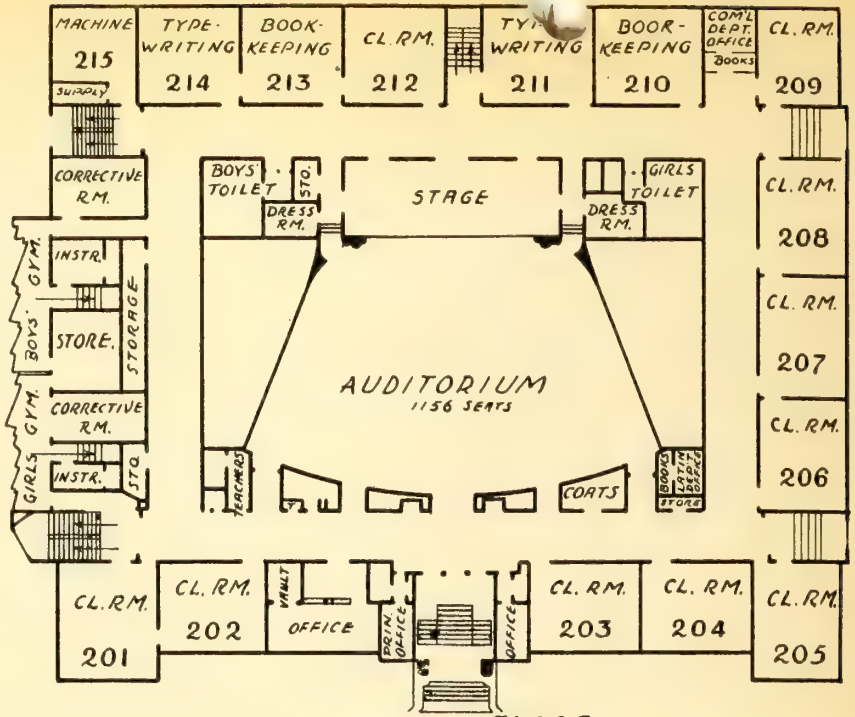
1933

• THE SCIENCE DEPARTMENT

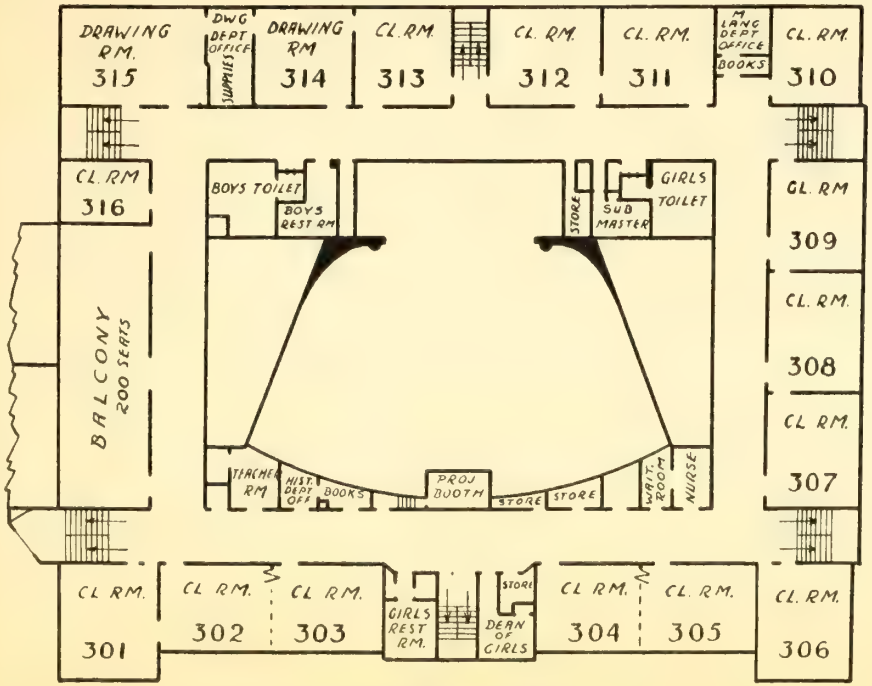
THE MELROSE HIGH SCHOOL



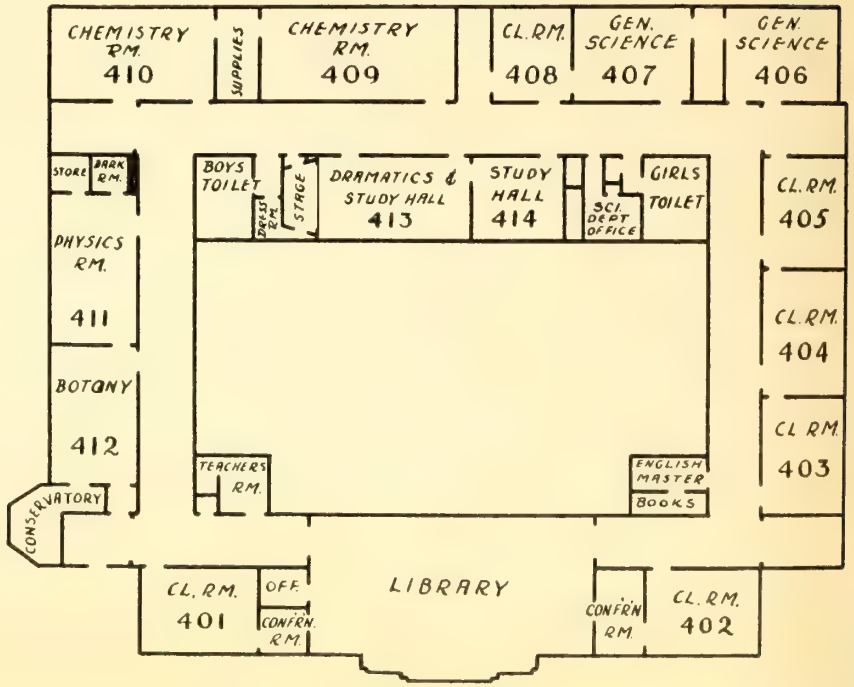
BASEMENT



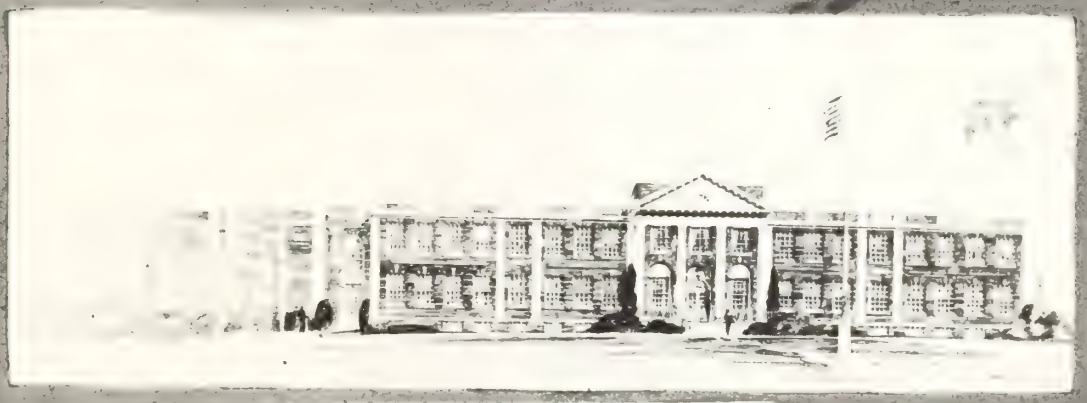
FIRST FLOOR

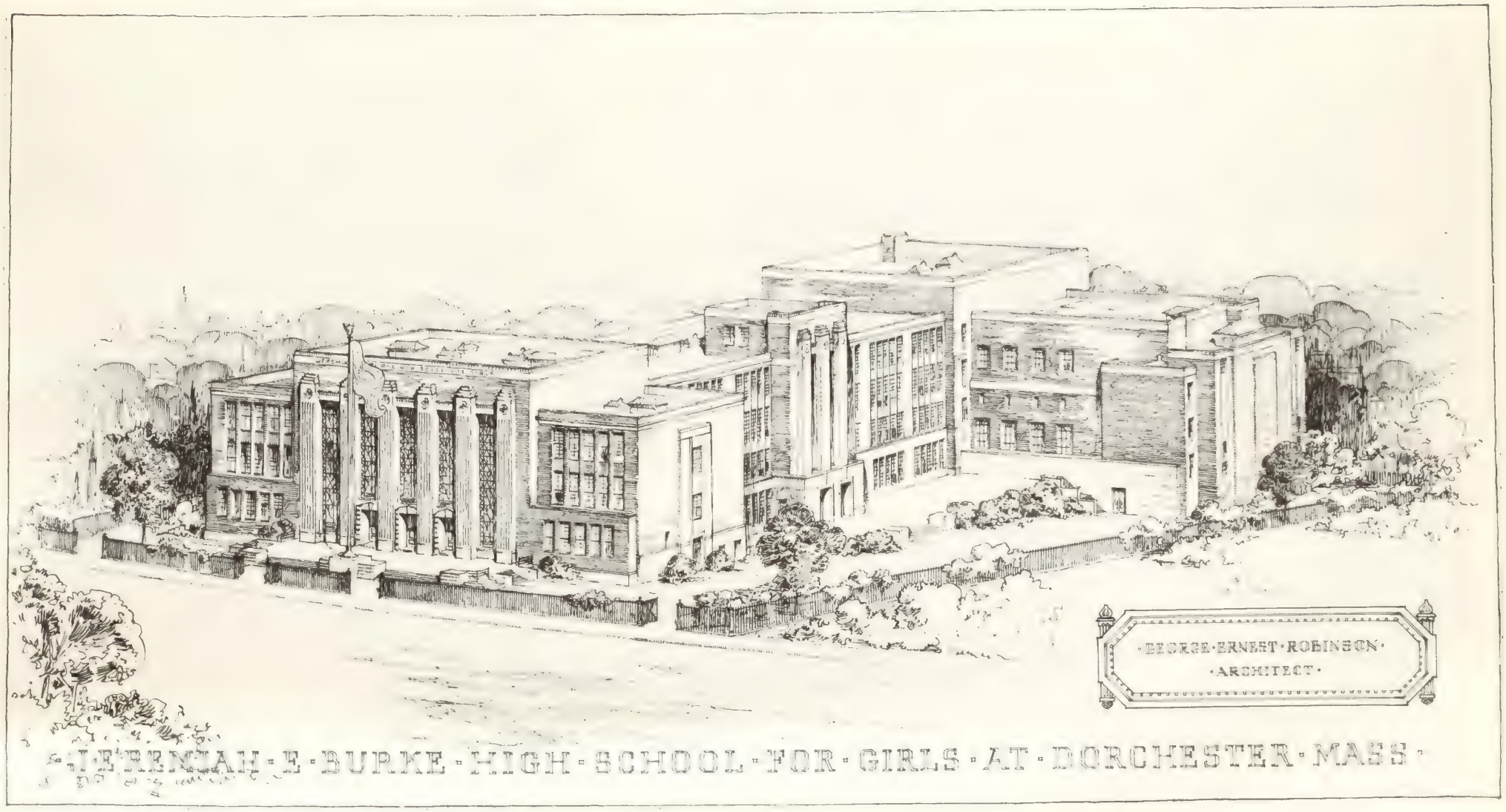


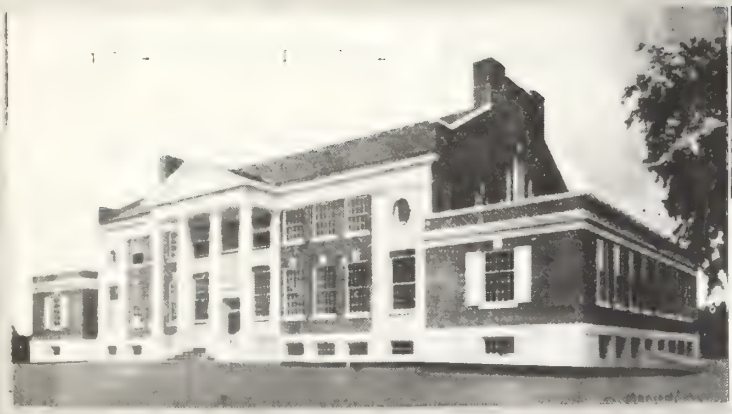
SECOND FLOOR

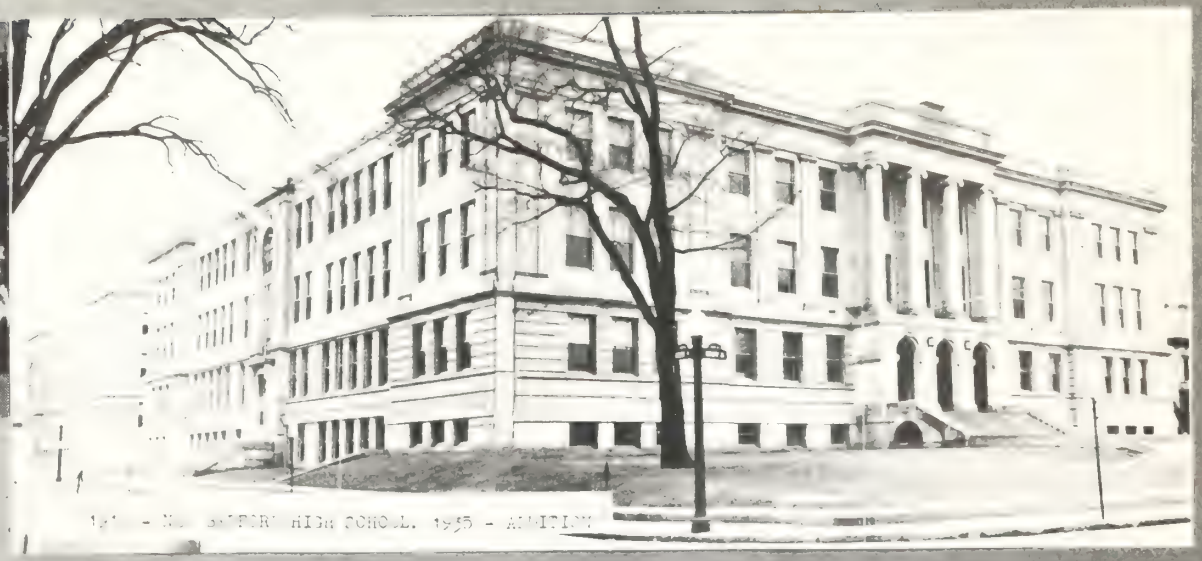


THIRD FLOOR

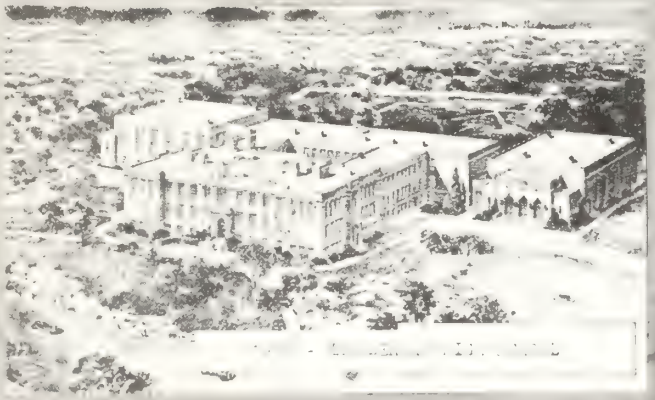



GEORGE·ERNEST·ROBINSON·
·ARCHITECT·
JEREMIAH·E·BURKE·HIGH·SCHOOL·FOR·GIRLS·AT·DORCHESTER·MASS·





1935 - AUDITOR

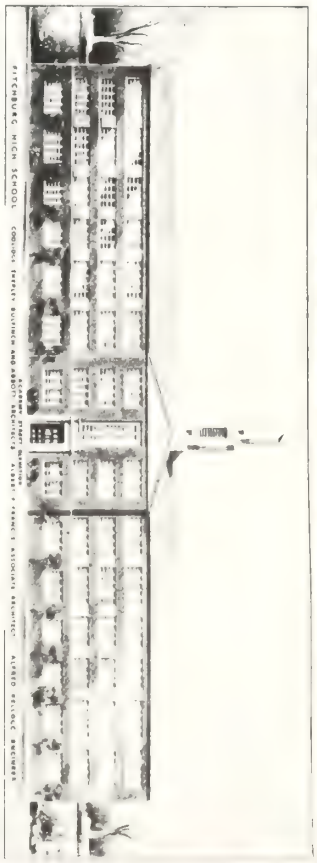


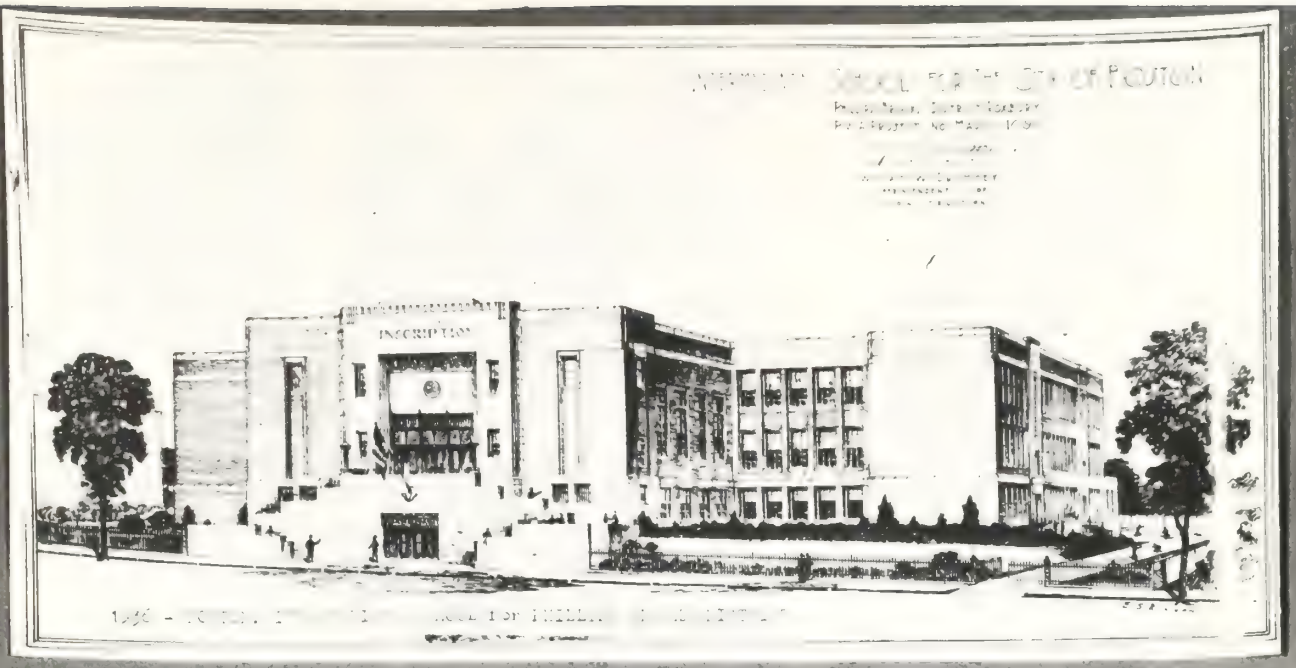
High school at West Springfield

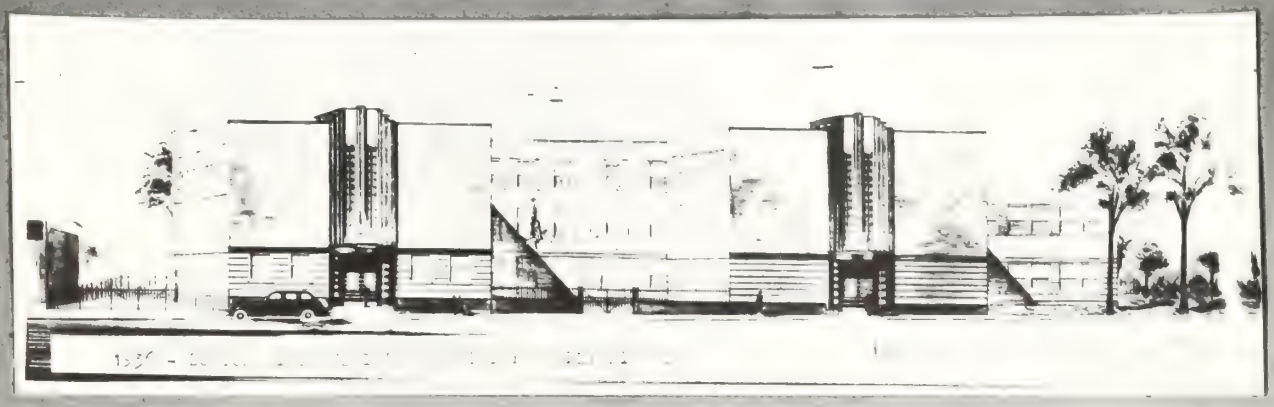
1936 - ROSLINDALE HIGH SCHOOL

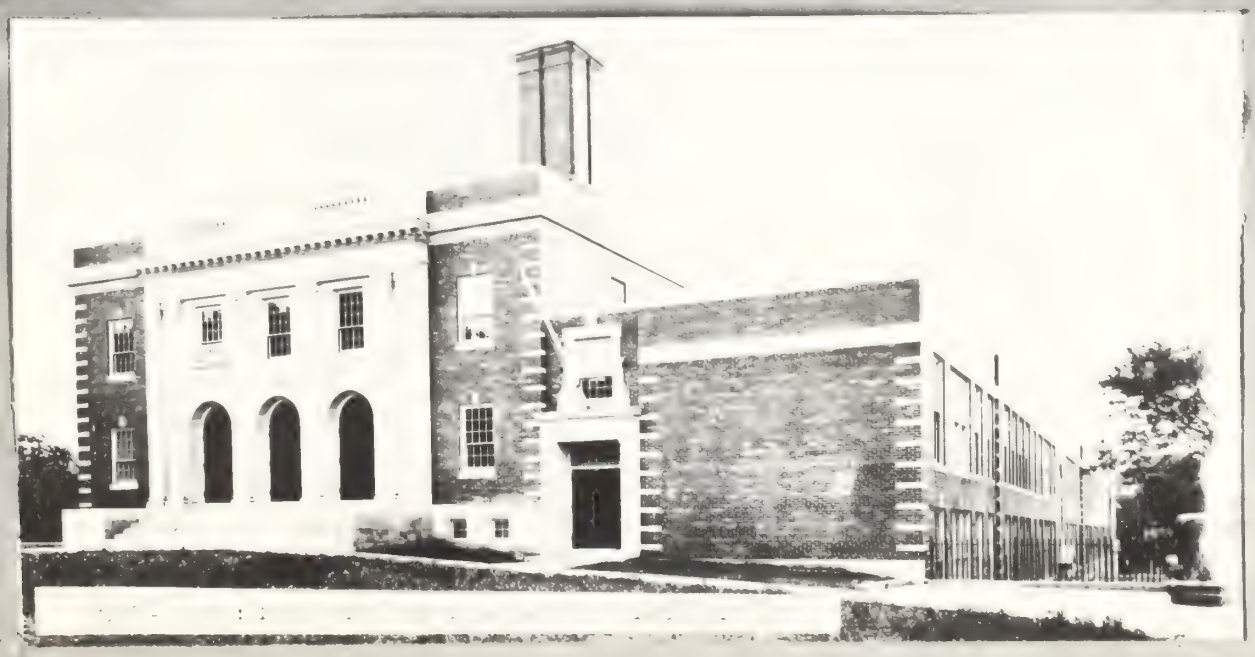
1936 - MILFORD HIGH SCHOOL ADDITION

1936 - AUBURN HIGH SCHOOL

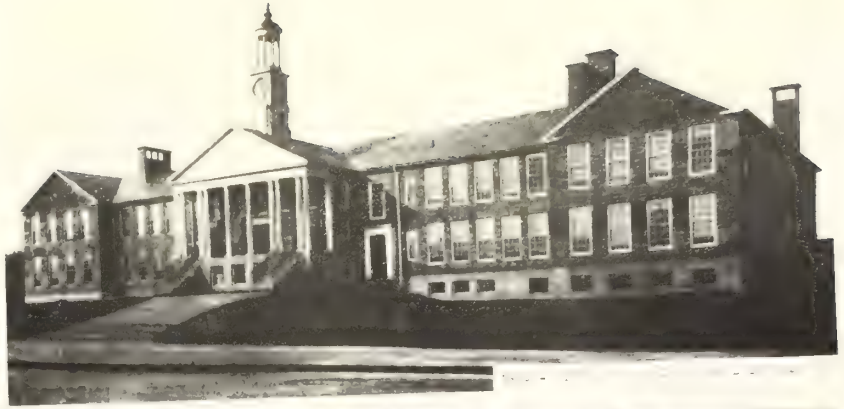


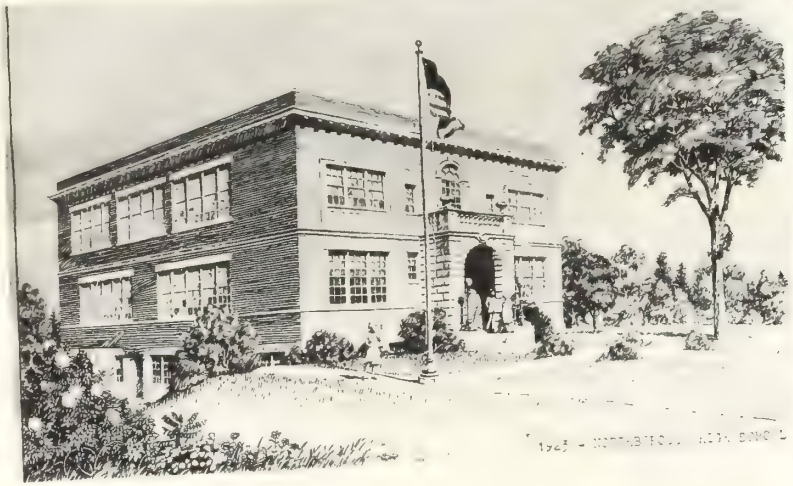

INSCRIPTION



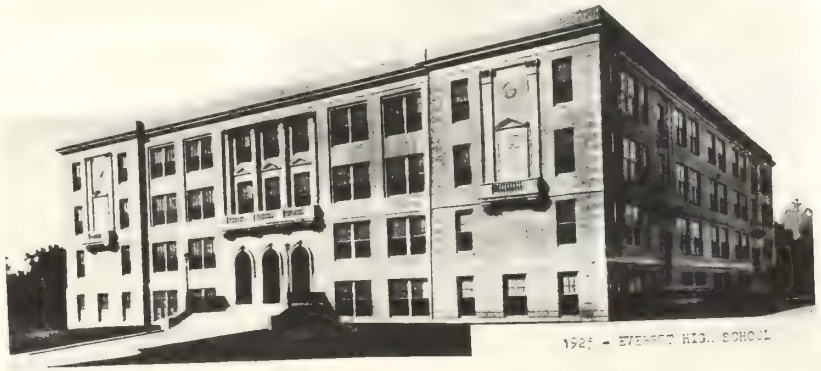


1924 - FALMOUTH HIGH SCHOOL





1925 - NORTHBRIDGE HIGH SCHOOL

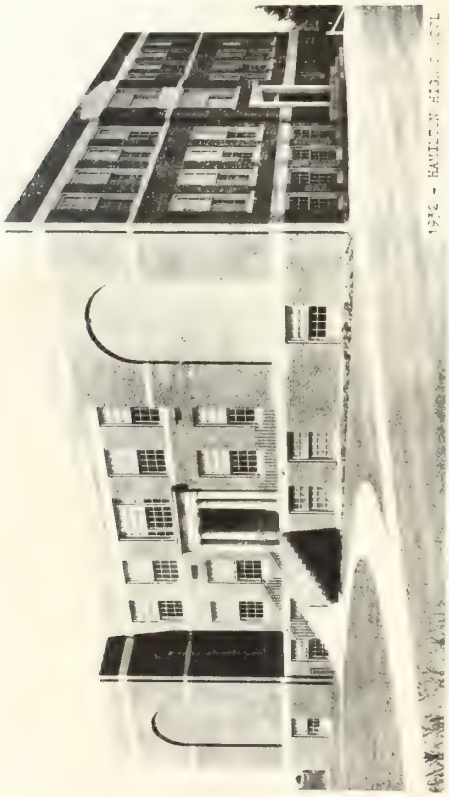


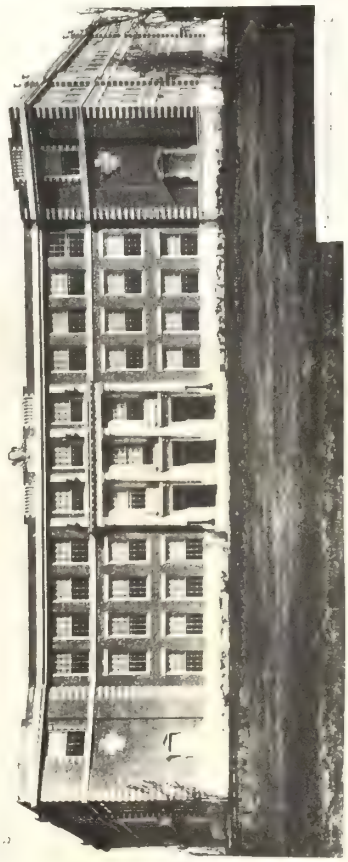
1925 - EVERETT HIGH SCHOOL

1926 - GROTON HIGH SCHOOL

1926 - ROCKLAND HIGH SCHOOL

1926 - DANVERS HIGH SCHOOL





We find therefore, that our present public high schools present a wide variety in outward appearance. It is difficult to trace any definite periods of development, for each town has had a free hand to employ any architect it saw fit and to approve any type of architecture which pleased it. Although standards of construction have imposed certain limitations, they have had very little effect upon the outward appearance of school buildings.

There has been a tendency to construct new buildings where there is plenty of room to spread out and then to take advantage of that opportunity. Consequently the building tends to become low and long. Four and five-story buildings are almost never seen today, and two or two and a half story buildings are much more frequent.

In the seventies the usual type was the mansard-roof, high building with towers and dormers. In the nineties it was the roof of four way slant which was characteristic. But in the past thirty years we have had many different types of buildings in the cities and towns, the principal point of similarity being that those of the cities were usually more dignified because the cities could afford that type of building while those of the smaller places showed the limitations of smaller spending power.

Out of the very many features which have appeared in individual buildings, there are eight which, in various combinations, have appeared in so many recent buildings that they may be said to be in the way of becoming stock parts.

First; there is the use of the colossal order, classical columns or pilasters which start at the stone course above the first floor and extend two stories in height. Sometimes these are merely in the entrance section, for many buildings seem divided vertically into sections, and sometimes almost entirely across the facade.

Second; there is the use of the flat roof, sometimes without any break at all in the cornice, sometime with gables orcother projections. There is usually a parapet, and frequently the horizontal line of the roof is emphasized by prominent stone courses separating the stories.

Third; there is the monumental entrance, consisting of four or more colossal columns supporting a gabled pediment, and usually broad steps leading up to the entrance, which may consist of a triple doorway, with arch or lintel.

Fourth; arched windows appear even in some of the very old buildings, but in more recent buildings the tendency has been to group windows in pairs, or sometimes in threes or even fours, and extend an arch over the entire group. Often the arch is of stone.

Fifth; the requirements that light shall come from one side only of a school-room, so that neither pupils nor teacher need face a windowed wall, has resulted in the construction of wings at right angles to the front of a building in which the windows appear only in the side wall with none at all in the front wall. This gives a rather unpleasant, unfinished look to the front elevation, and architects have sought various devises to relieve this blank-front wall - sometimes false windows, balconies, pattern brick-work, arches or stone ornament.

Sixth; wings at an angle to the main building. Frequently the wings are perpendicular to two intersecting streets and the main building is at forty-five degrees to these streets. This gives a pleasant approach to the building and provides an opportunity for improved lighting.

Seventh; the fleche or cupola which may originally have contained the school bell, or concealed a ventilating outlet, but which more frequently is for purely decorative purposes. It certainly dresses up a building.

Eighth; the revived slant roof with chimney-ends. The end walls are

carried a little higher than the slant roof but parallel to it and at the ridge, instead of coming to a point are interrupted by a low, broad chimney, the outer wall of the chimney flush with the end wall of the building. Sometimes two chimneys are joined.

These eight features which are still being used, together with the two which are now in disuse, are the ten most frequently found in the buildings which we have examined. Other tendencies which we see hinted in the Melrose high school and the Gavin, Curley, and Phillips Brooks intermediate schools, may develope into new styles in the near future. But for the small town the most hopeful sign is the reviving of typical Massachusetts colonial architecture, with chimney ends, small-paned windows, fleche, and simpler classical doorways.

In the past four years, the opportunity for towns to secure federal aid for the erection of public buildings has resulted in the erection of many small high schools which would not otherwise have been built. This has been a boon to architects and has stimulated more of them to give attention to school building so that we may expect many more new features, some of which will be good, and some - unfortunately - not so good.

XII. RESUME AND CONCLUSION

The history of secondary school building in Massachusetts covers almost exactly three hundred years. The first two hundred years saw no attempt at the planning of school buildings; they were just built, as a barn might be built, with no thought given to design, and certainly none to good looks.

The first plan for a school house was drawn by William Woodbridge in 1831, and the actual building of school houses which had been planned before they were built, dates from just about one century ago. Horace Mann did much to call attention to the need for improvement in school buildings, and Henry Barnard published practical school plans which he was able to see put into tangible form.

The building of adequate school houses was greatly hampered for the first fifty years of the century now closing, by the pernicious district school system, which fostered opposition to all attempts to spend money on buildings for school purposes.

With the final repeal, fifty years ago, of the district laws, and the placing of responsibility for school construction in the hands of the larger community, the character of school buildings immediately improved, and the building of better school houses was greatly stimulated.

During the quarter century which followed, school architects were developed. Architects vied with one another in the ingenuity with which new features were introduced or old ones improved, to the end that each new school house might serve its purpose more efficiently than any previous one. They studied diligently each new building erected and sought ways of making the next one a little nearer perfection.

The limit has not yet been reached in the improvement of school buildings, but for the past twenty-five years or more, there has been a tendency, from at least five different sources, to standardize the construction of school buiddings, so that each new architect or school building committee, may have the experience of all who built before to guide them, and the problem is confined to fitting certain well-defined rules of construction to the needs of the particular community which the building is to serve. And even the discovery of these needs is provided for in the rules. When the survey has been made by an expert in the administration of the school building process, the architect knows just what is expected of him and his technical skill does the rest. His field for originality of design is definitely circumscribed.

The amount of money available, the number of pupils to be accommodated, the curricula to be taught, and one or two other data, fix the character and size of the building; if he is to express his originality at all it must be in finding a loophole whereby he may express it.

The American people seem definitely committed to the policy that education is for all the people, and that the responsibility of providing the means for it rests with the people and their elected representatives.

At first, in this state at least, only boys being fitted for the ministry were thought to need more than an elementary education. Later that privilege was extended to all boys likely to become leaders in the state. Later still, it was extended, in a limited way, to girls. Still later it became the privilege of those who could afford the liesure and the expense of acquiring it. Now, it is expected that, if at all possible, every child who is educable to that extent, shall continue through high school, and in some places through some higher institution conducted at the public

expense, unless he prefers one under private management.

This democratization of education calls for larger and better educational plants, capable of accommodating greater numbers of pupils. The financial problem for doing this has been becoming a greater one to those communities whose tax rates were already unbearably high. At the height of the depression the situation grew so acute that many towns began curtailing the amounts of their appropriations for school purposes, knowing as they did so that it was a temporary measure only and that inevitably they must build more and larger school houses and spend more for maintaining their plants. Since the coming in of the New Deal, the government has made available federal aid for the construction of public works, including school buildings, and many communities have taken advantage of this to erect buildings for which they had long felt a need, or which they realized that they must build soon, perhaps when the burden would fall wholly upon the local taxpayers, instead of being distributed over the taxpayers of the larger community, the nation as a whole.

To a remarkable degree, this is another case where history repeats itself. The great improvement in schoolhouse planning and building between 1885 and 1910, came after the districts had reached the limit of their ability to spend, or to meet the demand for larger and better school houses. Some made an earnest effort to do it, but only the larger or more wealthy communities were able, and it was only as the larger unit, the town, took over the financing and management of the schools that any great improvement could be made.

May it not be that we are in the same situation today, and that the equalization of educational opportunity requires a similar solution? Is not the time approaching when the state and nation must take a hand?

A bill has been before our national congress for a number of years, to create a department of education in our federal government, which shall see that all the states, even the poorest and most backward ones, shall be able to offer certain minimum standards of education, through the help of all working together. Perhaps we are not yet ready for this but it is surely coming. Some of the temporary relief measures used by the federal government in the past four years, may very readily pave the way for more permanent methods of assistance to education.

On a smaller scale, however, it may be tried within our own state. Just as all the people of the town, combining their resources, are able to provide better educational plants than the various districts could do when struggling by themselves; so all the people of the state, if they were to combine their resources, might provide better high schools than any of the small towns separately, could possibly do. It is not alone that those who are strong should bear the burdens of the weak, but that, just as the consolidated districts could afford a central high school which none alone could do, just as the several towns of a superintendency union can afford educational facilities which none alone could afford, so it might easily be that under state control, high school buildings, well built and well equipped, could be distributed on a population basis, where the need exists, supported by equal taxation of all the people of the state, regardless of town lines or of town politics. It might even be that our secondary school system could be extended to include the twelve junior colleges which Mr. Zook (80) proposed. The control of the schools by the state department of education, through its agents and through the town superintendents acting as its local representatives, might serve the ends of education at least as well as the two hundred and fifty town school committees do.

To be sure, objections can be and would be raised to this plan, but when the worst is said of it, its advantages seem to outweigh its disadvantages, and whether we like it or not it seems about to come. We must have schools; a democracy demands the education of all its citizens as a safeguard of liberty and happiness. Some cities can stand the cost of providing for it, and they will be the ones to object to helping the towns which cannot, just as it is the wealthier states that object to helping the poorer ones in any such plan as that for the equalization of educational opportunities through the bill calling for a federal department of education.

Perhaps, instead of supporting two hundred and fifty high schools, most of them very small ones, and occupying old and inadequate buildings, we shall have half that number, serving the population of the state more evenly and more efficiently, better equipped and administered, at a total expense less than the two hundred and fifty are entailing today.

Massachusetts has lead the way in many eeucational innovations; perhaps her days of leadership are not past.

S E L E C T E D B I B L I O G R A P H Y

Including only those to which reference has actually been made.

BOOKS

1. Adams, Oscar Fay SOME FAMOUS AMERICAN SCHOOLS. Boston: Dana Estes & Co. 1899 [illegible] pp. Plates. [illegible].

Includes descriptions of some of the more prominent private schools in Massachusetts, such as Phillips, St.Marks, and Groton.

Reference on p. 73

2. Alcott, William A. ESSAY ON CONSTRUCTION OF SCHOOL HOUSES. Boston: Hilliard, Gray, Little and Wilkins. 1831. 66 pp Plates. Appendix.

Awarded the first prize for an essay on school house construction by the American Institute of Instruction, August 1831. An essay by William Woodbridge, received too late to compete, was included in the appendix. It contains a plan which had a tremendous effect.

Reference on p. 15, 41, and elsewhere.

3. Austin, Henry BUILDERS' GUIDE Hartford: Chester Hills 1846 Illustrations and plates.

Contains a chapter by Henry Barnard on SCHOOLHOUSE ARCHITECTURE, in which he commends Horace Mann's modification of Woodbridge's plan for a model school house, and adds one of his own.

Reference on p. 42

4. Barnard, Henry SCHOOL ARCHITECTURE New York: Barnes & Co. and Syracuse: Bardeen. Six editions, four of which are dated 1842, 1846, 1848, 1851.

The chapter on COMMON ERRORS IN SCHOOL HOUSES includes his model plan.

Reference on p. 50

5. Briggs, Warren Richard, F.A.I.A. MODERN AMERICAN SCHOOL BUILDINGS New York: [illegible] First [illegible] 411 pp. [illegible].

Treatise upon school architecture with some designs for school houses.

Reference on p. 95

[illegible]. [illegible] Service Co. 1906 197 pp, 24o, plates.

A handy manual for the use of architects and educational authorities.

[illegible]

[illegible]. Donovan, John J. SCHOOL ARCHITECTURE New York: Macmillan Co. 1921 724 pp. Illustrated, folded map, plates, plans, charts, selected [illegible]

Contains plans and pictures of Wentworth Institute in Boston, the Vocational School in New Bedford, the Smith Agricultural School in Northampton, the Boys' Trade School in Worcester, and the Taunton High School.

Reference on p. 101

[illegible]. Dorchester Antiquarian and Historical Society. HISTORY OF DORCHESTER [illegible]

On p.420 mention is made that girls might be admitted to the town school at the discretion of the selectmen. They were not.

Reference on p. 26

[illegible]. Engelhardt, Nickolaus Louis SCHOOL BUILDING PROGRAMS IN AMERICAN CITIES New York: Teachers College 1928 130 pp.

Includes a survey of school building needs of Lynn, Massachusetts.

Reference on p. 107

[illegible]. Felt, Joseph Barlow HISTORY OF IPSWICH, ESSEX, AND HAMILTON [illegible]

Many different sources for the support of schools in Ipswich listed.

Reference on p. 18

[illegible]. Frothingham, Richard HISTORY OF CHARLESTOWN Boston: Little & Brown 1845 368 pp. Map, illustrations.

Profits from the fish weirs helped to support the public schools.

References on p. 18

12. [illegible] [illegible] 1[illegible] [illegible]

Contains a quotable definition of "the history of architecture".

Reference on p. 37

13. Harris, William Torrey U. S. Commissioner of Education and Editor of the International Series on Education. In introduction to Martin's EVOLUTION OF THE MASSACHUSETTS PUBLIC SCHOOL SYSTEM. New York: [illegible] 1[illegible]

Lists reasons why Massachusetts is an ideal state upon which to base a study of public school history.

Reference on p. 8

14. Hill, Frank Alpine HOW FAR THE PUBLIC HIGH SCHOOL IS A JUST CHARGE ON THE PUBLIC TREASURY Boston: Published privately 1898 8o.

An address before the New England Association of Colleges and Preparatory Schools at Springfield, Oct. 15th, 1898. States that in 1852 there were 64 high schools reported in Massachusetts.

Reference on p. 25

15. Holmes, Oliver Wendell THE SCHOOLBOY A poem on p. 98 of the Poetical Works of Oliver Wendell Holmes. Boston: Houghton, Mifflin [illegible]

Describing a class in the old brick academy building at Phillips-Andover Academy.

Reference on p. 72

16. Holy Cross College. HISTORICAL SKETCH OF THE COLLEGE OF THE HOLY CROSS Worcester: Holy Cross College 1849 also Boston: D.H.Greene 27 pp. 8o

The opening of a seminary near Worcester by Fr. James Fitton in 1840

Reference on p. 26

17. Jenks, Henry Fitch THE BOSTON PUBLIC LATIN SCHOOL 1635-1880 Cambridge: Moses King 1881 34pp. 12o Illustrated.

Reference on p. [illegible] Pictures of four buildings of this school.

18. King, [illegible] 1861

Calls the Boston English High and Latin School building the largest structure in the world used as a free public school.

Reference on p. 39

19. Kingsley, Clarence D. Supervisor of High Schools for the Massachusetts Board of Education, and Chairman of the Committee on the Reorganization of Secondary Education of the National Education Association. [illegible] SENIOR HIGH SCHOOLS AS AFFECTING BUILDINGS, in Donovan's SCHOOL [illegible] 1941

Reference on p. 102

20. Martin, George Henry EVOLUTION OF THE MASSACHUSETTS PUBLIC SCHOOL SYSTEM New York: D. Appleton & Co. 1915 254 pp. Revised in [illegible]

On p.40 he gives a very good description of the typical district school of the pre-Mann period, and on p.112 he softens the picture by saying that after all, just as the insignificant Lake Itasca is the source of the mighty Mississippi River, so it was the district school that "set the rill aflowing". Much valuable source material.

References on pp. 21 and 40

21. Mills, Wilbur Thoburn AMERICAN SCHOOL BUILDING STANDARDS Columbus, O.: Franklin Educational Publishing Co. 1910 324 pp. plan

Advises concerning procedure when a new school building is to be erected. Lists state laws on school building. Quotes from American School Board Journal of April 1906, on the change of attitude toward the planning of school houses.

[illegible]

22. Paige, Lucius R. HISTORY OF CAMBRIDGE 1630-1877 Boston: 1877

[illegible]

[illegible] 12

[illegible]

[illegible]

Reference on p. [illegible]

24. [illegible]

Requirements for entrance to Harvard about 1660.

Reference on p. [illegible]

25. [illegible]

Lists the Latin grammar schools established before 1700

Reference on p. [illegible]

26. Sargent, Porter HANDBO[illegible]

[illegible]

Reference on [illegible]

27. [illegible]

Chapter 3 tells of the opening of the Seminary and of the [illegible] tion of Abbott Academy in Andover in 182[illegible]

Reference on p. 26

28. [illegible]

[illegible]

Reference on [illegible]

29. [illegible] Boston: 1898

Plans of the English High and Latin School building.

Reference on p. 80

[illegible]

[illegible]

Reference on p. 26

[illegible]
[illegible]

School opened in 1826, closed because too popular, and re-opened in 1852 as a school for training teachers.

[illegible]

[illegible]
in the Architectural Forum for August 1922, School Building Number.

He suggests a plan for an octagonal building for a high school.

Reference on p. 105

[illegible] In Journal of the National Educati[illegible]
[illegible]

Includes charts showing progress in state laws between 1910 and 1915

[illegible]

Dressler, Fletcher D. TWO OF THE DIFFICULTIES IN THE WAY OF GETTING [illegible] in the American School Board Journal for [illegible]

[illegible] blames the ignorance of scho[illegible]

Reference on p. 105

Hammond, Charles NEW ENGLAND ACADEMIES in Barnard's Journal of Education for March 1860

[illegible]

Reference on p. 22

[illegible] Maher, James J. Boston School House Commissioner. A HEATING AND [illegible] 1[illegible]

[illegible] Wolcott District of Boston.

Reference on p. [illegible]

[illegible] Hess, [illegible] [illegible] Junior High School. In Architectural Forum for August 1922.

Reference on p. 102

[illegible] Sturgis, Richard Clipston THE BIRD ELEMENTARY AND JUNIOR HIGH SCHOOL IN WALPOLE in Architectural Forum for August 1922.

Reference on p. 102

[illegible]

[illegible] [illegible] 1928 [illegible]: [illegible]

Contains list of Massachusetts architects who have designed high school and junior high school buildings in the State.

Reference on p. [illegible]

[illegible] ANDOVER PRIMER Andover: Phillips Academy 1928

Story of the early days of the academy.

Reference on p. 71

[illegible] AYER'S NEWSPAPER AND PERIODICAL GUIDE New York: N.W.Ayer & Sons [illegible]

Lists all the local newspapers in Massachusetts

Reference on p. 158

42. BOSTON RECORD COMMISSIONERS Second Report p.160 Boston: Rockwell Co. 1876

Early Boston schools [illegible] supported by subscriptions of wealthy citizens.

Reference on p. 18

43. [illegible]

Proposals for the type of school suggested, with curriculum.

Reference on p. 24

44. BOSTON SCHOOL COMMITTEE Records of June 23, 1824

First official use of the term "high school".

Reference on p. 25

45. [illegible]

Suggestions for improvements in school buildings.

Reference on p. 61

46. BOSTON SCHOOL COMMITTEE Report of John D. Philbrik, Superintendent of Schools 1882

Description of building of the Boston English High and Latin building.

[illegible]

47. BOSTON SCHOOL COMMITTEE Report 1893 Dr. Charles W. Parmenter, First Headmaster of the Mechanic Arts High School

Describes the building of that school.

[illegible]

48. BOSTON SCHOOL COMMITTEE Report 1899

Description of bathing facilities in Paul Revere School

Reference on p. 93

49. [illegible]

Establishment of the Brimmer School

Reference on p. 56

[illegible] BOSTON SCHOOL COMMITTEE Report 1912 Schoolhouse Condition Report

More than fifty schoolhouses in Boston erected before 1860 were then in use.

Reference on p. 77

51. CAMBRIDGE SCHOOL COMMITTEE Report 1867 Report of High School Principal

Description of the new Cambridge High School

Reference on p. 85

52. Cooper, Frank Irving SCHOOL ARCHITECTURE Encylopedaeia Britannica [illegible]

A brief but most comprehensive article on the subject.

Reference on p. 13, 14

53. Junior Colleges, Proceedings of the Third Annual Meetings of the American Association of

Contains an official definition of a junior college

Reference on p. 36

54. Massachusetts Historical Society, Collection of 1636

Reasons for the founding of Harvard College.

Reference on p. 16

55. Massachusetts ACTS AND RESOLVES OF THE GENERAL COURT Vol 1 p 470

1701 Teachers must be approved by the minister and those of the two adjoining towns.

Reference on p. 20

56. Massachusetts. ACTS AND RESOLVES OF THE GENERAL COURT Vol 1 p.470 1701

Complains that Act of 1647 is being shamefully neglected p.470
Many towns evade it by appointing minister as schoolmaster p.476

Reference on p. 19

[illegible]. Massachusetts. ACTS AND RESOLVES OF THE GENERAL COURT. [illegible]
Gov. [illegible]
Reference on p. 23

[illegible]. Massachusetts. ACTS AND RESOLVES OF THE GENERAL COURT March 4, 1826
Towns of a certain size must employ a master to teach high school.
Reference on p. 25

[illegible]. Massachusetts ACTS AND RESOLVES OF THE GENERAL COURT 1872 Ch. 86
Permitting support of free industrial schools.
Reference on p. 31

[illegible]. Massachusetts STATE BOARD OF EDUCATION First Report 1838
Reference on p. 15

[illegible]. Massachusetts STATE BOARD OF EDUCATION Supplement to First Report 1838
Horace Mann describes deplorable condition of schoolhouses in 1837
Reference on p. 45, 46

[illegible]. Massachusetts STATE BOARD OF EDUCATION Second Report 1839
Mann commends improvements already started and suggests a plan.
Reference on p. 15, 48

[illegible]. Massachusetts STATE BOARD OF EDUCATION Ninth Report 1846
Mann tell method used to convince boards of need for new schoolhouses
Reference on p. 58

[illegible]. Massachusetts STATE BOARD OF EDUCATION Twelfth Report 1849
Mann reports amount spent on school houses since 18[illegible]
Reference on p. 62

65. Massachusetts STATE BOARD OF EDUCATION Seventeenth Report 1853

Barnabas Sears suggests fifteen plans for school houses in rural towns and villages.

Reference on p. 74

66. Massachusetts STATE BOARD OF EDUCATION Thirty-fourth Report 1872

Drawing made a regular study in all Massachusetts schools

Reference on p. 30

67. Massachusetts STATE BOARD OF EDUCATION Thirty-fifth Report 1873

Report on Condition of School Houses by Abner J. Phipps, Special Agt.

Reference on p. 15

68. Massachusetts STATE BOARD OF EDUCATION Fortieth Report 1876

By 1840 there were 89 incorporated academies in the State, says George A. Walton

Reference on p. 22

69. Massachusetts STATE BOARD OF EDUCATION Forty-fourth and Forty-Sixth Reports 1882 and 1884

Woodworking, sewing and cooking added to school curriculum

Reference on p. 11

70. Massachusetts STATE BOARD OF EDUCATION Forty-eighth Report 1886

Dr. D. F. Lincoln, in the supplement on School Architecture to Sec. J. W. Dickinson's report, criticises the sanitation, lighting, heating and ventilating of school houses.

Reference on p. 74

71. Massachusetts. Records of Vol.2 p.8

Order of General Court in 1642 to selectmen of towns to provide for elementary education.

Reference on p. 17

72. [illegible] Vol. [illegible] p. [illegible]

Providing for a "college to be at Newtowne".

Reference on p. 16

73. Massachusetts, Records [illegible] Vol. [illegible] p. [illegible]

Law of 1647, ordering establishment of elementary and secondary schools in towns of certain populations.

Reference on p. 17

74. National Education Association. Report of the Committee on SCHOOL HOUSE PLANNING. 1925 Frank Irving Cooper, chairman

The most important influence toward standardization. A most valuable chapter is that on DETECTING WASTE IN THE PLAN. It sets up a "Candle of Ratios" by which to estimate the proportion of floor area to be devoted to instruction and to each of five other purposes.

Reference on p. 104

75. New England Commercial Telephone Directory 1936

List of schools for business training in Massachusetts

Reference on p. 32

76. Pennsylvania, Acts of the State Legislature of 1905

Law requiring state to approve plans for school houses.

Reference on p. 97

77. United States. Bulletin of the Office of Education 1916, No. 8

Report of the Committee of Fifteen on the articulation of high schools and colleges.

Reference on p. 34

78. United States. Bulletins of the Office of Education

The number of junior high schools reported in each of a series of years

Reference on p. 35

79. United States. Bulletin of the Office of Education 1931 No.20

List of high schools other than public.

Reference on p. 142

80. Zook, George Report of a fact-finding SURVEY OF TECHNICAL AND [illegible] 111 [illegible] p. charts, tables, maps. Published in Boston Rendered Dec.26th, 1923

Recommending the establishment of a number of junior colleges at certain centers.

Reference on p. 36

A U T O B I O G R A P H Y

Frank Martin Gracey	Professor of Fine Arts, Head of Department, Eastern Illinois State Teachers College	
Born in Gardner, Massachusetts	June 22nd, 1884 son of Orice Martin and Esther (Gray) Gracey	
Graduate	Massachusetts Normal Art School, 1906 Master of Arts, Yale University, 1924	
Married Ruthella Sprague	April 25, 1906 Children: Philip Sprague 1909 Justin Gray 1913 Orice Franklin 1920 Athella Paige 1927	
Instructor	Michigan State College	1906-07
	Massachusetts State College	1907-09
	Massachusetts Institute of Technology	1909-20
	Yale University	1920-24
Head of Department	State Normal School, Plattsburg, N.Y.	1924-28
Director of Art School	University of Wichita, Kansas	1928-30
Graduate Study	Boston University	1930-37
Head of Department	Eastern Illinois State Teachers College	1936-
War Service	Naval Plattsburg, 1916 Sgt., R.O.T.C., Engineer Corps 1917-18	
Member	American Association of University Professors National Education Association Illinois Educational Association National Art Education Association Illinois Art Education Association Western Arts Association	
Address	1010 Sixth Street, Charleston, Illinois	